

MANUFACTURERS' RECORD

A WEEKLY REVIEW OF THE IRON, STEEL, METAL & HARDWARE TRADES.

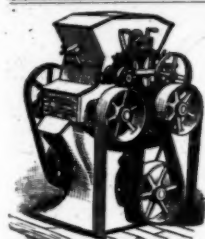
AND A MANUFACTURING AND TEXTILE PAPER, DEVOTED TO THE UPBUILDING OF SOUTHERN MANUFACTURES AND THE DEVELOPMENT OF THE MATERIAL RESOURCES OF THE SOUTH.

VOL. 8. No. 11.
WEEKLY.

BALTIMORE, OCTOBER 24, 1885.

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We make Rolls or Portable Mills for making New Process Corn Meal.
Complete outfits on any system Rolls or Stones for Wheat Grinding.

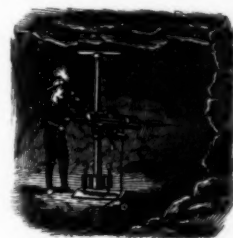
Send for Circular of our \$500 Flour Mill Outfit.



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MORSE, WILLIAMS & CO. Successors to CLEM & MORSE
Manufacturers and Builders of HYDRAULIC STEAM, BELT and Hand-Power, PASSENGER and FREIGHT **ELEVATORS** With most approved Safety Devices.
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Decides in favor of Royal Mail OVER ALL OTHERS for his own mount, and for orders which his friends asked him to fill with the best wheel he found while East he selects Royal Mails!!

Messrs. Wm. Read & Sons: Gentlemen, after a careful examination of the different makes at the late meetings, I consider the Royal Mail superior to any other in the market. Please forward at once these orders entrusted to my selection by friends, for the best wheel I found, and send me a 54-inch for myself, and also a Racer.

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Winning Tricycle "Royal Mail"

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Especially advantageous for country roads, as the front wheel being on one side, the rough horse-path and stones and obstacles are easily avoided. Easy of access, especially for ladies. Very easy running and comfortable.

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Block Safety Hammerless,

With Crystal Apertures showing position of hammers at a glance. Independent strikers. Locks can be taken off, as on any old-time gun. 20, 16, 12, 10 BORES. We are meeting a great demand for these guns. Send Stamp for Circulars and List of High Grade Second-Hand L's.

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Handsomest Hammer Gun made. Hammers completely below line of sight.

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Also All Other Makes: GREENER, LANG, FOREHAND & WADSWORTH, HARRINGTON & RICHARDSON, COLT, PARKER, DAVIS, L. C. SMITH, Etc., Etc.

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Send Stamp for our Circulars and List of High Cost Second-Hand Guns taken in Trade.

Wiswell Ore Pulverizer and Amalgamator Combined.

The cost of this Mill is much less than any other machine of sufficient capacity to do the same amount of work.

It requires less power to run it, (10-horse being sufficient.)

The wear and tear of the Mill is much less than any other Quartz Mill doing the same amount of work, and the quality of the work done by it is greatly superior to work done in any other Quartz Mill now in use.

It crushes to a uniform fineness and makes no slimes, so that no sizing is required for concentration.

The Mill is equally well adapted to crushing and pulverizing of all classes of ores, either for amalgamation or concentration, and will pulverize and amalgamate from one-half to one ton per hour, according to character of ore and fineness of screens.

With ordinary care there is no loss of mercury by flouting, and consequent loss of gold, as in most other Mills where mercury is used in the Mill.

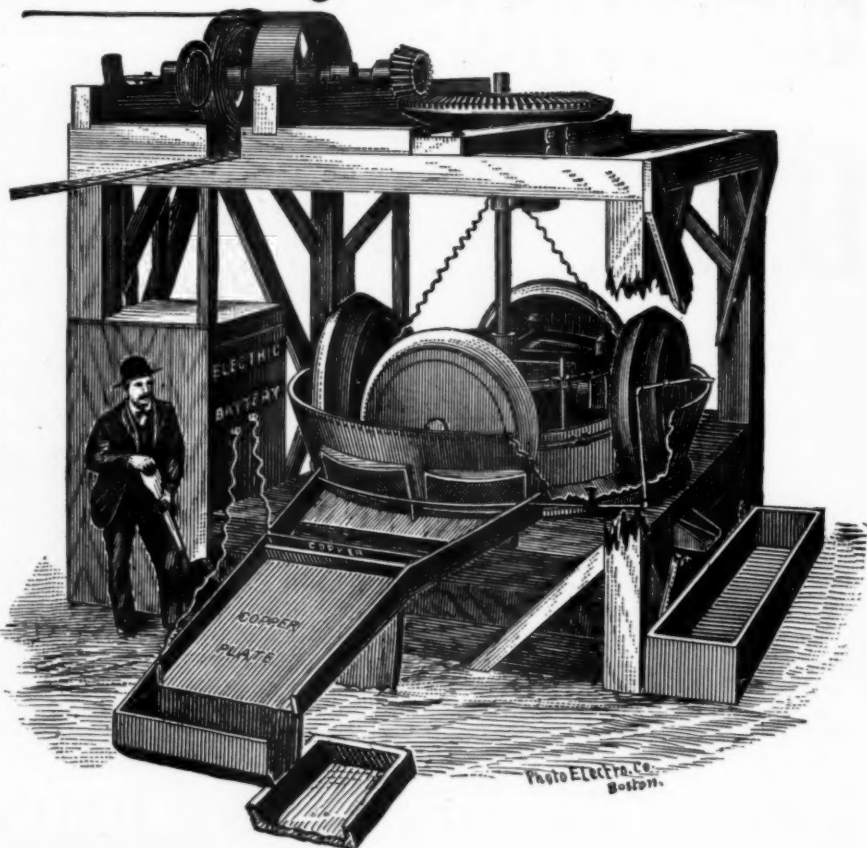
Amalgamation is carried on in the same operation with the crushing. The mercury is placed in the Mill in quantities varying from 10 to 40 pounds.

The application of electricity to the Mill for the purpose of cleaning and keeping the mercury alive has been to a very large extent superseded by the invention and introduction of the Mercury Trap in the Mill for the purpose of drawing off the mercury when charged with gold or on the slightest indication of flouting. By this ingenious device the mercury can be changed as often as desired without loss of time in either crushing or amalgamating. By opening this Trap the amalgam is discharged from the Mill in three minutes, and clean mercury introduced in its place.

To those familiar with running a Gold Mill this latter advantage will be greatly appreciated; in fact, it gives the mill-man full control of his work.

This Mill has been on exhibition at the foundry of Messrs. Bisbee & Endicott, at Chelsea, Mass., for the past 18 months, a good part of the time in active operation, and we have treated the most rebellious ores from many mining districts with most satisfactory results to the parties concerned.

The past year we have sold many Mills, which may be found in Michigan, North Carolina, Dakota, Montana, Idaho, Colorado, California, Mexico, Nova Scotia, etc. All those in operation are giving the most perfect satisfaction, as testimony will prove, and we will take pleasure in referring to any one of these on application.



We Furnish a Complete Mill for \$2,500, Delivered on Board Cars.

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OF THE MOST IMPROVED PATTERNS.

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Prices as Low as any other First-Class Wheel.

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Our plant for the production of MACHINE-MOULDED MILL GEARING is unequalled in the country, and we are prepared to fill orders with dispatch and at GREAT SAVING IN COST OF PATTERNS.



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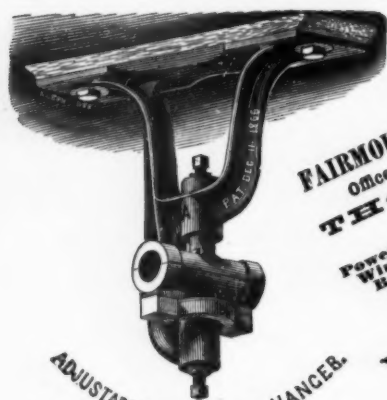
SHAFTING, PULLEYS, HANGERS and COUPLINGS, of latest and most approved designs.

N. B.—Shipping facilities the best in all directions.

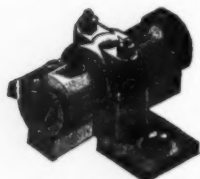
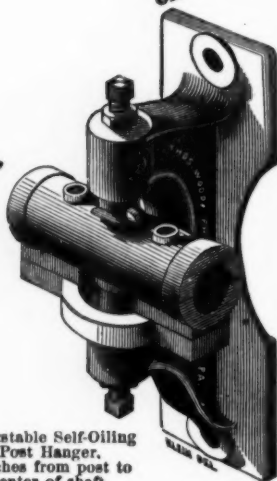
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ADJUSTABLE SELF-OILING HANGER.

Ball and Socket
Self-Oiling Pillow Block.DOUBLE-BRACED ADJUSTABLE
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6 inches from post to
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Manufacture as Specialties

Power Looms, Patent Bobbin or Quill
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16, 18 and 20 yards Circumference,
WITH IMPROVED HECKS.

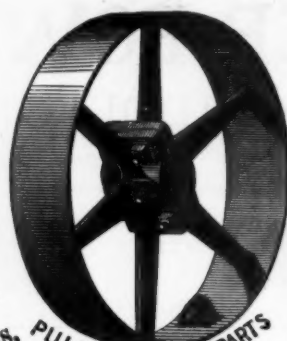
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With Patent
ADJUSTABLE SELF-OILING HANGERS, PULLEY IN TWO PARTS
8, 10, 12, 15, 18, 20, 24 and 30 in. drop.

Also WALL, POST AND GIRDER HANGERS.
Pulleys, from 4 inches to 10 feet in diameter.
PATENT FRICTION PULLEY.
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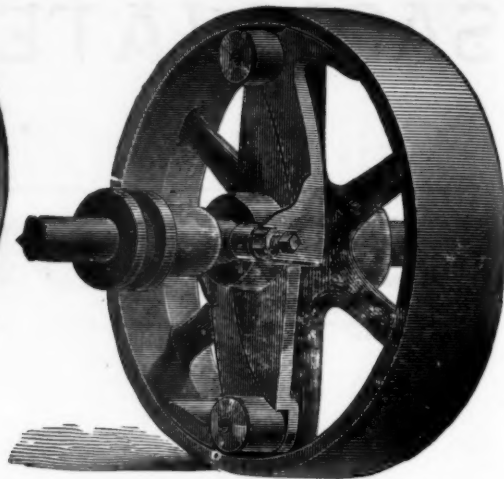
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such as Angular, Muley, and Gallows Driving,
furnished for any position
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PULLEYS from 4 inches to 10 feet in diameter.

Why use old style Bearings, that require oiling
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thus save oil and labor enough to pay for the bear-
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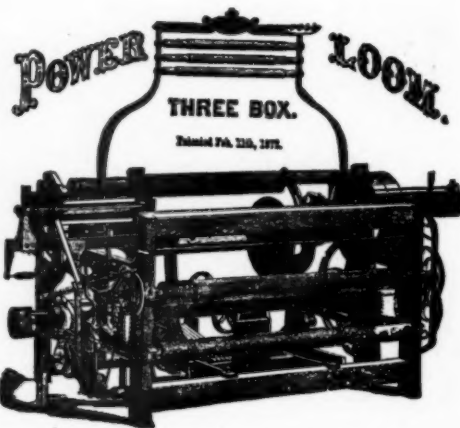
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**PATENT FRICTION PULLEY.**

Simple, reliable and very durable.
Suitable for any kind of driving, they
serve equally well as driver or driven.

**POWER LOOM.**
THREE BOX.
Patented Feb. 22, 1872.

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Sole Manufacturers of the Celebrated

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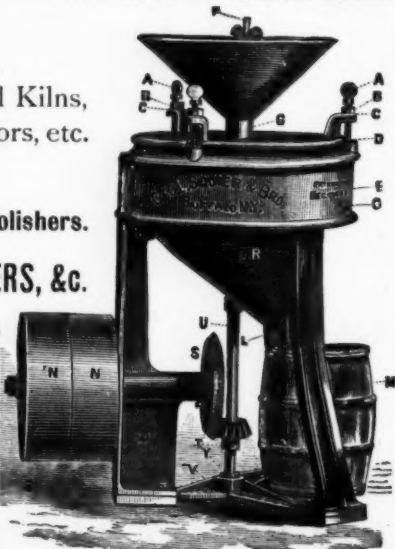
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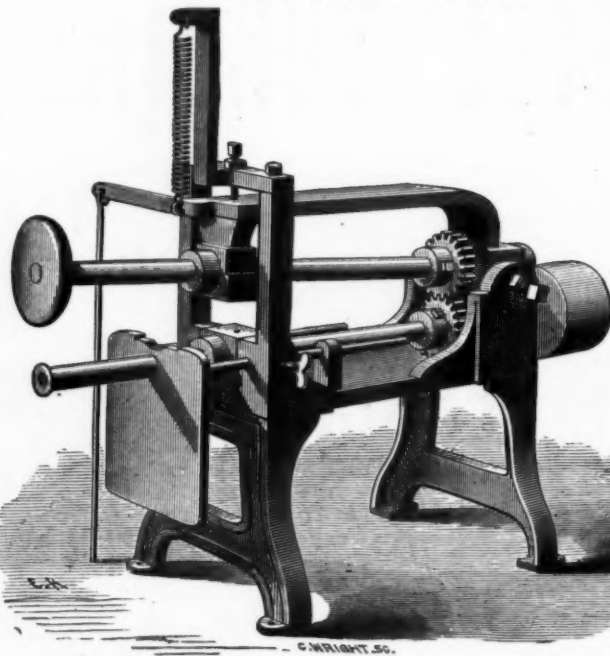
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Presses, Dies,

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SPECIAL MACHINERY

FOR WORKING SHEET METAL.



Double Seaming Machines, CIRCULAR SHEARS, Squaring Shears,
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COTTON MACHINERY.

ALSO, IMPORTERS OF

Wool, Worsted and Flax Machinery and English Card Clothing. Hardened and Tempered Steel Wire a Specialty.

MILL ENGINEERS.

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GREAT SUCCESS OF OUR

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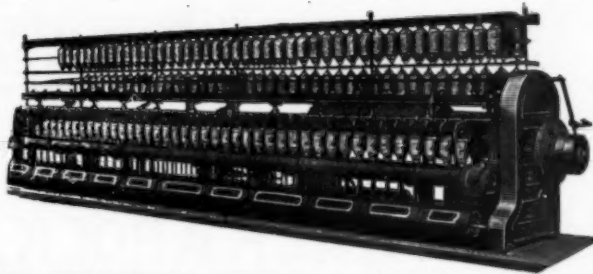
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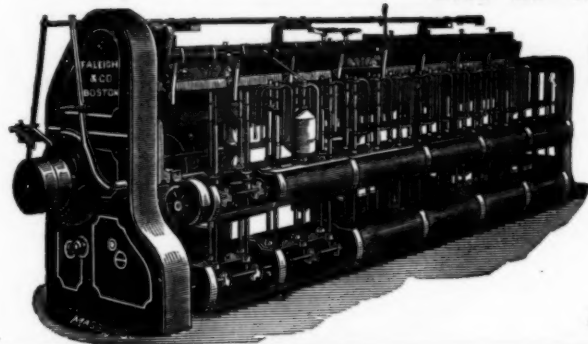
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800 CYLINDER SLASHERS Now at work in America alone

Patent and plain Spindle, Spinning and Twisting Frames, Spoolers, Reels and Circular Warpings, Cloth Folders, Size Kettles plain and Fancy Looms, Spindles, Flyers and Fluted Rolls.

SLUBBING AND ROVING FRAMES WITH LATEST AND BEST IMPROVEMENTS.**F. A. LEIGH & CO.**
Importers of Mill Machinery,

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Openers, * Lappers, * Cards, * Drawing,
Slubbing and Roving Frames,
CARD CLOTHING, Etc.

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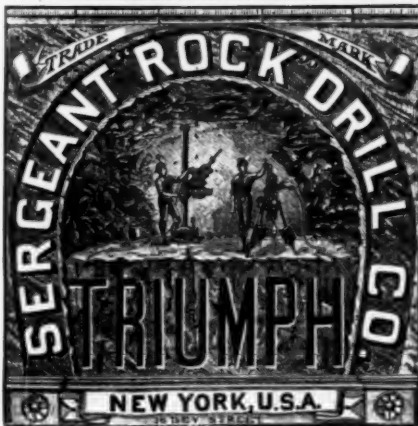
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GOLD MEDAL AWARDED NEW ORLEANS, 1885, FOR BEST RUNNING BELTS.

*Made PERFECTLY Straight and any Length without Joints.**For Main Driving it is the Best. Much Cheaper Than Leather.*

MANUFACTURED BY

THE GANDY BELTING CO., BALTIMORE, MD.**THE "TRIUMPH" ROCK DRILL**
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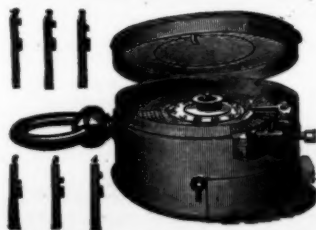
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Boilers, Steam Pumps, Hoisting Engines, Pipe and Fittings, Electric

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Complete Specifications for Rock Drilling and Mining Plants Furnished on Application.

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—IMPORTANT FOR ALL LARGE CORPORATIONS AND MANUFACTURING CONCERNS.—

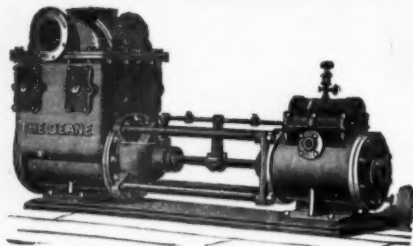
Capable of controlling with the utmost accuracy the motion of a watchman or patrolman as the same reaches different stations of his beat. The instrument is complete in itself, portable, and as reliable as the best lever watch. It requires no fixture or wires communicating from room to room, as is the case with ordinary watch clocks.

The Instrument will in all Cases be Warranted Perfect and Satisfactory.

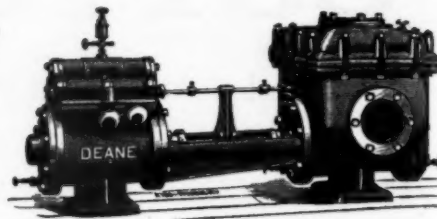
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J. E. BUERK, Proprietor, No. 230 Washington St., BOSTON, MASS.

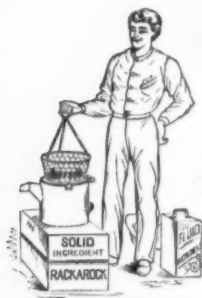
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MANUFACTURE
Every variety of Pumping Machinery
VACUUM PUMPS FOR SUGAR WORK, ETC.
IRRIGATION PUMPS ARE SPECIALTIES.
Water Works Pumping Engines for Cities and Towns.



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RENDROCK POWDER COMP'Y,

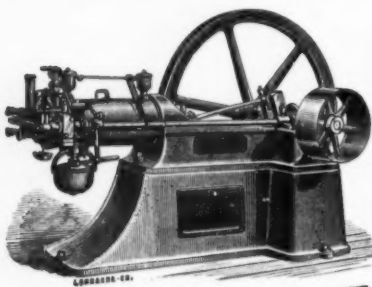
MANUFACTURER OF THE INGREDIENTS
OF THE NEW PATENT BLASTING POWDER:

RACKAROCK.

IT CONTAINS NEITHER GLYCERINE NOR
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It Does Not Freeze. Can be shipped by express, railway or steamship lines. Neither of the two ingredients are explosive until combined, and when combined are safer than Dynamite. This explosive approximates Nitro-Glycerine in strength. Send for circulars to

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Over 14,000 in Use. Otto Gas Engine

20 to 70 per ct. less Gas consumption than ANY other ENGINE.

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No explosions, no fires nor cinders, no gauges, no pumps, no engineer or other attendant while running. Recommended by insurance companies. UNEQUALLED IN EVERY RESPECT for hoisting in warehouses, printing, ventilating, running small shops, &c. Sizes: 1 to 25-horse power.

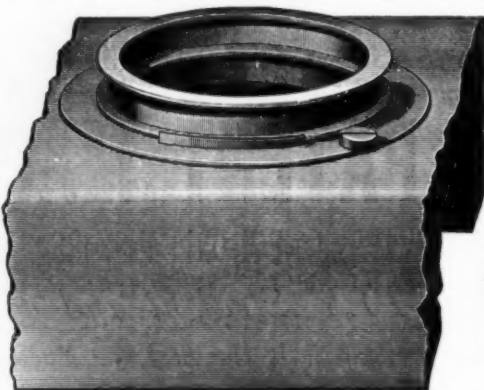
Branch Office, 214 Randolph St., Chicago.

SCHLEICHER, SCHUMM & CO., N. E. cor. 33d and Walnut Sts., Philadelphia.

DOUBLE ADJUSTABLE Spinning Rings.

GEORGE DRAPER & SONS,
HOPEDALE, MASS.

TELEGRAPH ADDRESS AND RAILROAD STATION,
MILFORD, MASS.



Number of Rings sold.	Number of Rings sold for repairs.
1869..... 6,005.....	
1870..... 20,258.....	
1871..... 38,648.....	
1872..... 94,264.....	12
1873..... 117,301.....	
1874..... 168,382.....	500
1875..... 223,924.....	903
1876..... 185,319.....	947
1877..... 270,811.....	946
1878..... 215,214.....	3,309
1879..... 336,918.....	8,007
1880..... 567,860.....	11,264
1881..... 659,730.....	5,974
1882..... 636,715.....	22,515
1883..... 416,500.....	21,689
1884..... 319,869.....	25,105
1885, 5 mos. 112,522.....	12,118
Total number sold in 16 years..... 4,390,260.....	116,349
Total number in use 4,273,911.	

The great durability of our Rings is shown by the fact that we have more rings in use over twelve years old than all we have sold for repairs.

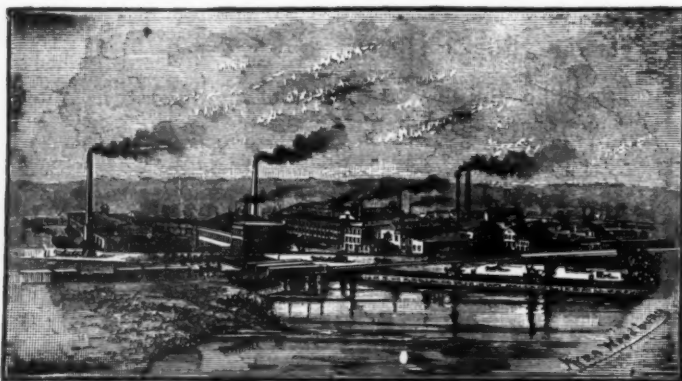
This statement shows unmistakably that a mill once supplied with our rings need think but little of the cost of repairs. As the number sold for repairs is an average of about twenty per cent. of the number sold the tenth year before, the average life of our rings will be at least twelve years.

Do not make the mistake of ordering new frames without specifying Double and Adjustable Rings. While they cost more to begin with, they are much the cheapest in the end, on account of their uniform excellent quality and unparalleled durability.

As an encouragement to use none but the best of Rings, we have decided to reduce the price on and after the first day of January, 1885, of those 1 1/2 inches or less in diameter, without holders and screws, to be used only to take the place of our rings worn out, to 12 cents each.

Washburn & Moen Manufacturing Co., Worcester, Mass.

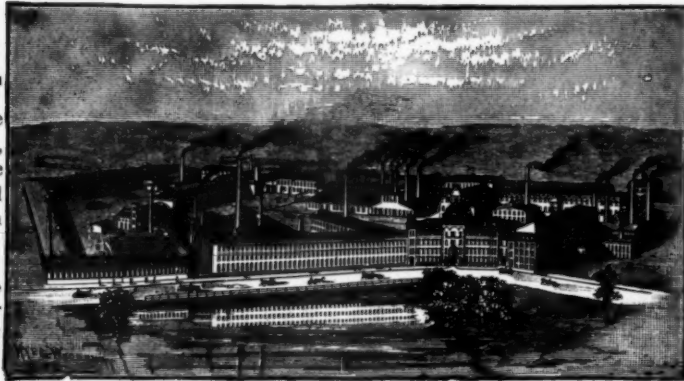
Wire Drawers, and Manufacturers of Iron and Steel Wire of Every Description.



Iron and Steel Telegraph
and Telephone Wire.

Patent Steel Wire Bale
Ties, Pump Chains,
Chain Wire, Steel Wire
for Springs, Needles and
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Springs.

Send for Price-Lists,
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Specialties.



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GLIDDEN PATENT STEEL BARB WIRE.

The Best Fence Material in Use.
For Sale by Special Agents and Hardware

Proof against Fire, Wind and Flood.
Dealers in all Parts of the United States.

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Reading Notices 50 cents per line each insertion.

BALTIMORE, OCTOBER 24, 1885.

CORRESPONDENCE relating to the manufacturing, mining, lumbering and all other material interests of the Southern States is solicited. Reaching so many capitalists in all parts of the United States seeking profitable investment in the South, the MANUFACTURERS' RECORD offers an excellent chance for the people in that section to place the advantages of each locality before those likely to be interested. We will take great pleasure at all times in telling what has already been accomplished in the South, and showing up the opportunities of doing still more.

A FEW weeks ago we gave some particulars of the Montgomery Long Fibre Cotton Ginning Co., of Washington, and stated that if their claims were fully sustained when their new process was put to a practical test, it would probably almost revolutionize cotton spinning. Mention was made of the fact that they were then preparing the necessary machinery at Griffin, Ga., to test this process. The Griffin News of last week says:

For some time past Col. T. Montgomery, from Washington, D. C., together with several others, have been in the city for the purpose of making experiments with seed cotton with a view of separating the cotton from the seed without injuring the staple. Their operations have been carried on for some time in a building on Sixth street; engines were erected and other machinery placed there for the purpose above mentioned. Everything being in readiness the theory was given the benefit of a thorough trial this week, and every hope cherished by those who had labored faithfully for its success was realized. Everything worked beautifully. After undergoing the process the seed almost dropped from the cotton, leaving the fibre whole and possibly whiter and purer for having undergone the process. The seed was in no way injured, all the lint, though, having been taken from it, leaving it perfectly bare. "It's a wonderful and monstrous success!" exclaimed the few who were fortunate enough to witness it, while the excitement of all intimately connected with the experiment cannot be easily explained. For the present the process is a secret.

A New Method in Making Charcoal Iron.

We have heretofore mentioned the fact that at Goodrich, Tenn., the Standard Charcoal Company are extracting alcohol from wood while making charcoal, and that they are now erecting a furnace for producing pig iron by a new process that possibly may work an important change in that industry. In a late issue the Nashville American gives some additional particulars regarding this enterprise, furnished by Dr. Church. In May, 1884, Dr. Pierce, of Buffalo, N. Y., laid the foundation for the works of the Standard Charcoal Company. There are now twenty brick coke ovens in operation; they will hold from forty-nine to fifty-six cords of wood each, with the exception of one.

As soon as an oven is filled the door is sealed, wrought iron shutters being used for the purpose, and the fire in the under furnace kindled and supplemented with gas after two or three hours. Each oven has a chimney or channel connecting it with the main gas distributor, which runs in a line between the two rows of ovens. In the course of eighteen or twenty hours after the wood in the ovens is fired the gas begins to pass off through these chimneys to the main gas distributor, and is first carried to the condensing room. In this room there are five condensers. Four of them have eighty vertical tubes and one of them 100 tubes, through which 300 gallons of cold water is made to flow per minute, condensing a portion of the gas, forming crude pyroligneous acid, while another part, incompressible, is carried into a separate main and supplies fuel for lighting the wood in the ovens, heating boilers and smelting ores.

The condensed pyroligneous acid is conveyed to large tanks in a separate building, where it is permitted to stand until the tar has well settled. This tar is used altogether in making steam. The pyroligneous acid then goes through three distillations to bring the alcohol contained in it to 82 per cent.

The alcohol meets with ready sale for industrial uses. The amount yielded by a cord of wood is from one to two and a half gallons. It is estimated that the amount of tar is from five to seven barrels from each oven. One hundred gallons of this tar will make as much steam as a cord of wood, so that from each oven the tar for fuel purposes is equal to two or three cords of wood. This tar is carried from the bottom of the tanks by pipes and thrown into the furnaces by steam injectors.

In order to keep up the flow of gas, which passes out from the ovens during the process of carbonization, an exhaust-fan, run by an engine of fifteen horse-power, is constructed. This draws the gas from the furnaces, forcing it into the condensers and creates pressure enough after it passes

through the condenser to drive the incondensable gas on to the furnaces, where it is burnt. Some of this is distributed to the furnaces under the ovens, some to the boiler furnaces, and some to the iron furnace, the larger proportion being used in the latter.

It requires a period of six days to convert the wood in an oven to charcoal, and six more days to cool the oven so that it may be opened. From a cord of wood weighing about 4,000 pounds there will be from 1,150 to 1,200 pounds of charcoal, 180 to 200 gallons of pyroligneous acid and from 6,000 to 7,000 cubic feet of incondensable gases. A cord of wood, by this process, will give fifty bushels of charcoal and incondensable gas equivalent to twelve additional bushels, besides the tarry product, altogether adding 65 per cent. to the fuel value of a cord of wood, while it may be safely affirmed that the value of the alcohol distilled from the condensed pyroligneous acid will, on an average, equal the original cost of the wood placed in the ovens.

In the carbonization of the wood a very great saving is made by the new process. It is estimated that ten cords of wood would be required to ignite the wood in an oven, or 20 per cent. if wood were used alone, but by using the incondensable gas one-half cord is found to be amply sufficient for this purpose. At the works at present nine-tenths of all this heat is generated by this incondensable gas. This gas is mainly composed of hydrogen and carbonic oxide. It is by no means a constant quantity, varying much with the condition of the wood and the heat of the oven.

There is now in process of erection at the works an iron furnace which will be 45 feet high, 9 foot bosh, 4 feet diameter at the hearth, 48 inches from hearth to tuyere, 6 feet 9 inches to the stock line, 16 feet from the hearth to the greatest diameter of the bosh. The estimated capacity is thirty tons run on charcoal alone. The blast will be heated to 600° before being driven into the furnace. The casting shed is 42 by 70 feet. There is a double hot blast in which air will be driven over iron pipes 9 inches in diameter. The blowing engine will be 24 by 48 inches, which will have a speed of 70 revolutions per minute.

The incondensable gases will be brought from the gas distributor of the charcoal works to a blowing engine, which forces the volume through an independent hot blast, where it will be heated to 400 or 500 degrees, and driven into the furnace by a special Baker blower, which will give four pounds pressure guaranteed to the inch. Experiment was made at this place in a small trial furnace last summer, having a capacity of three or four tons per day, and the saving of fuel, when used in connection with the incondensable gases, was 40 per cent. It is believed that still better results will be obtained from the well-appointed furnace now building,

because it will be operated under much more favorable conditions for the saving of fuel. It is confidently predicted by the friends of Dr. Pierce that the fuel cost for the making of a ton of charcoal iron will be reduced to \$3, or even less.

An Important Move.

We have repeatedly had occasion to commend the excellent work of the managers of the Woodstock Iron Company, of Anniston, Ala., in their efforts to improve and develop that town. Their plans are apparently the result of careful study, and seem to look more to the steady permanent growth of what promises to be not only the "Model City of the South," as Anniston is now known, but the model city of the country, rather than to a "boom" at present. This company own thousands of acres of the very best farming lands around Anniston, and we learn from the Anniston Watchman that they have decided upon a new move, which, when fully put into operation, will be of immense value, not simply to that town, but to the whole South, for it will be an example well worthy of imitation by others. The managers of the company, the Watchman says, have determined to divide their farming lands adjacent to Anniston off into farms embracing from ten to fifty acres each, and sell them out at reasonable prices. A competent engineer will carefully make the surveys, run off roads with as much regularity as the streets in a city and proportion every plat of land accordingly. The roads will be macadamized and sidewalks constructed, as in a city. The importance of such an improvement as this will be best appreciated by those who know the condition of country roads throughout much of the South in winter time.

We feel sure that as soon as these improvements are made, the demand for these small farms will be very great. Many Northern and Western farmers, who are now deterred from settling in the South on account of the condition of the roads in winter, the lack of good schools except at long distances, and other disadvantages, would welcome the opportunity of securing a small farm near a town like Anniston, when they see that they will have the best roads that can be made, superior educational facilities, a home market for the products of their farms, and many other attractions.

MR. W. R. STUART, of New Orleans, La., in a letter to the MANUFACTURERS' RECORD, says: "The South has a grand outlook, with best trade, best prospects for over 30 years. Every muscle, nerve and artery of trade, industry and enterprise seem to be quickened—no boom—but steady, solid progress."

THE Times-Union, of Jacksonville, Fla., has issued its annual trade number, which is a splendid exposition of the resources and attractions of that State.

The Cotton Trade, 1869 to 1885.

An Early Improvement Predicted by Mr. Ellison.

Mr. Thos. Ellison, the well-known cotton authority, of Liverpool, contributes a very interesting article upon the production and consumption of cotton in the world to the last issue of Latham, Alexander & Co's "Cotton Movement and Fluctuations." The cotton trade of the world, he writes, "is passing through one of those unpleasant periods of depression incidental to and inseparable from vigorous industrial progress. It is impossible, and it would be undesirable if possible, to so nicely adjust supply and demand that they shall run in exact parallel lines. The efforts of competing producers to meet the fluctuating requirements of consumers necessarily lead to occasional over-production; while the reluctance to bring production back to the limits of consumption results in such a serious diminution in profit that, before the equilibrium between supply and demand is restored, a host of weak producers are crushed in the struggle for existence. In this connection a brief statement of the various causes which have influenced the course of the cotton trade for several years past cannot but be of interest. As a starting point we present the following account of the average weekly deliveries of cotton, in bales of the uniform weight of 400 pounds, to English, Continental and American spinners, in each of the past 17 years:

	Great Britain.	Continent.	United States.	Total.
1869.....	45,000	36,000	21,000	102,000
1870.....	52,000	34,000	19,000	105,000
1871.....	60,000	49,000	24,000	133,000
1872.....	55,000	41,000	22,000	118,000
1873.....	60,000	43,000	25,000	128,000
1874.....	61,000	48,000	27,000	136,000
1875.....	59,000	46,000	25,000	130,000
1876.....	62,000	56,000	28,000	146,000
1877.....	58,000	47,000	30,000	135,000
1878.....	57,000	52,000	33,000	142,000
1879.....	57,000	53,000	34,000	144,000
1880.....	67,000	53,000	39,000	159,000
1881.....	70,000	63,000	41,000	174,000
1882.....	69,000	62,000	41,000	172,000
1883.....	73,000	71,000	46,000	190,000
1884.....	74,000	63,000	41,000	178,000
1885.....	66,000	60,000	37,000	163,000

The figures for Great Britain are from our own annual reports; those for the United States are based upon the annual statements issued by the New York Commercial and Financial Chronicle; the Continental figures are based upon the returns issued by the various governments, our own statistics not being fully complete for all countries so far back as 1869.

It is generally admitted that the stocks at the mills everywhere touched what may be termed the minimum point in 1872, 1875, 1879 and 1882, and that they will also be again at the minimum this year. The actual average weekly consumption was probably about as follows in the periods named:

	Great Britain.	Continent.	United States.	Total.
1869-72, 4 yrs.....	53,000	40,000	21,000	114,000
1872-75, 3 ".....	60,000	44,000	26,000	130,000
1875-79, 4 ".....	58,000	52,000	31,000	141,000
1880-82, 3 ".....	69,000	59,000	40,000	168,000
1883-85, 3 ".....	71,000	64,000	41,000	176,000

These figures are exclusive of Canada, Mexico, Portugal and Greece, which jointly consume about 90,000 to 100,000 bales of imported cotton, both Mexico and Greece using also some native cotton.

The maximum rate of consumption was reached in 1883. The totals for that year compare as follows with those of 1869:

	1869.	1883.	—Increase.—
Russia.....	243,000	660,000	417,000
Sweden.....	40,000	68,000	28,000
Germany.....	367,000	804,000	437,000
Holland.....	24,000	54,000	30,000
Belgium.....	90,000	155,000	65,000
Switzerland.....	98,000	124,000	26,000
France.....	580,000	624,000	44,000
Spain.....	135,000	247,000	112,000
Italy.....	130,000	235,000	105,000
Austria.....	240,000	499,000	259,000
Total Continent.....	1,887,000	3,400,000	1,513,000
Great Britain.....	2,347,000	3,744,000	1,397,000
United States.....	1,110,000	2,388,000	1,278,000
Grand Total.....	5,344,000	9,532,000	4,188,000

The year 1869 witnessed the end of a period of depression which had existed since 1866. The unsatisfactory state of trade was then, as now, attributed to foreign competition, but the main cause was the abuse of the Limited Liability Act passed in 1862.

In 1870 the position of spinners underwent a decided improvement, and 1871 was a year of unprecedented prosperity. The Franco-German war led to a diminished consumption of cotton in those countries, and to an abnormal increase in Great Britain. In 1872 the French and German cotton industries were again in full swing. The consumption of cotton in Great Britain was slightly smaller than in 1871, but considerably larger than in 1870. 1873 found the markets of the world more or less overstocked—in Germany, owing to the sudden increase in the power of production, occasioned by the transfer of 1,500,000 spindles to that empire from France, and to the active working of the machinery in existence prior to that transfer; in France, to the efforts made to fill up the gap left by the transfer of the Alsatian spinners to Germany; in England, to the maintenance of the abnormal increase in production caused by the temporary interruption of the Franco-German industries. During the year trade in Germany was greatly depressed and consumption was reduced, but in England and France there was an increase. Prices in France were so high and the profits of French spinners so handsome that the exports of yarn and goods to that country were unprecedentedly large, the shipments of goods rising from 41,000,000 yards in 1869 to 108,000,000 in 1873. Meanwhile the cost of producing all kinds of manufactures had been greatly increased by the rise which had taken place in the rate of wages, and by the advanced prices of iron, coal, and all kinds of textile raw materials. In the meantime came the breakdown of the railway mania in the United States, followed by monetary pressure here and financial disturbances in Germany and Austria.

1874 opened with excessive stocks of goods everywhere, but the rate of production in this country was well maintained. The abnormal business with France continued, and the Germans and others complained that their markets were overloaded by English products. Nothing very serious would have happened, perhaps, if the goods had been produced at low or even at normal prices; but they were produced at a most extravagant cost, and the country was suffering more from dear than from over production. Despite this, the activity in the floating of Limited Liability Cotton Spinning Companies (which had commenced to show itself in 1872-73) became greater than ever, and in 1874-75 about 3,000,000 spindles were floated in Oldham alone. Quite as many were started elsewhere, including private firms converted into limited companies. But the inevitable results of the unhealthy inflation and reckless extravagance which ruled in 1870-73 were beginning to show themselves. Nothing very serious took place in 1874, but in 1875 commenced the disasters, which followed each other in rapid succession and increasing intensity, from the failures of Im, Thurn & Co., Sanderson & Co., the Aberdare Iron Co., Alexander Colliery & Co., J. P. Westhead & Co., Young, Bortwick & Co., in this country, and Robert Benson & Co. and Duncan, Sherman & Co., in America, in 1875, down to the suspension of the Glasgow Bank and Western Bank of England, in 1878—all of which failures contributed their quota towards disclosing the desperate means to which resort had been had to avert the inevitable consequences of widespread commercial intoxication. In the meantime trade had been adversely affected by the deficient food crops in Europe in 1875, 1876 and 1877; by the famines in India and China in 1877 and 1878; by the rise in the value of gold; by the disturbed state of the Eastern exchanges, occasioned by the fall in the value of silver, and more or less by political uneasiness.

1879 witnessed the end of a period of depression and the commencement of a period of activity. All countries partook of the improvement, England gaining her full share. In 1883 the consumption of cotton reached

unprecedented figures, and although other countries did an increased business, their prosperity did not interfere with the sale of British cotton products in any portion of the world. On the contrary nearly the whole of the Continental manufacturing centers complained of the severity of British competition within their own borders and in all outside markets. In Oldham and the neighborhood there was almost as great a mania for mill building as in 1872-75, and the production of yarn rapidly ran ahead of consumption. Towards the end of 1883 stocks began to accumulate, and in December of that year the pressure was so great that the manufacturers and spinners of Northeast Lancashire had to resort to 'short time.' The partial stoppage of machinery went on until February, 1884, when many of the mills resumed full work. There was some 'short time' also in Oldham during the summer and autumn. This circumstance, together with the fall in cotton, caused by the forced sale of the early arrivals of the American crop, greatly improved the position of producers; and as buyers of yarn and cloth looked for some advance in prices as the season went on, owing to reduced crop estimates, they did an unprecedentedly large business in the months of October, November and December. Speculators followed suit. The result was enormous anticipatory sales of cotton, yarn and cloth. A good business was done also in January and February of this year, and the mills were all working full time right up to the end of March. Everyone was looking for 6½d., and buying cotton below 6d. was regarded as another name for coining money. The upshot was that the world, which was already filled with cotton goods, was now saturated with them. In March, April and May new business was scarce, but people regarded the pause as only temporary. Disappointed speculators sold their near futures, not to spinners, as they had expected, but to other speculators, and replaced their sales by purchasing more distant positions. But month after month passed by, and still no relief came. The consumer had anticipated the speculator, instead of the speculator the consumer, and as the speculator did not want the cotton he had bought, it had to be sold at the best possible price. Eventually it became apparent that there had been a gigantic amount of overtrading, and so soon as this was recognized, all classes of operators made up their minds to liquidate all outstanding accounts and to do as little new business as possible until the advent of the new season.

Many English spinners and manufacturers complain that their trade is injured by foreign competition; but this is only partly true. No doubt if the Continental countries had not increased their consumption of cotton we should have sold them more calico; but our shipments of yarns and goods to the Continent show very little falling off, while to the outside markets of the world they display constantly increasing quantities. The increased consumption of cotton on the Continent is due in part to the improved condition of the people and to the higher wages earned by the working classes, compared with 15 or 20 years ago. Part of the increase, too, is at the expense of linens and the lighter makes of woollen fabrics, the consumption of which for clothing purposes has been either positively or relatively reduced, as was the case in this country between 1840 and 1860. The mill owners in the Rossendale valley and other districts complain of the competition of the Bombay mills, which they say have taken their trade away; whereas they are suffering not from Bombay, but from Oldham competition. It is small mills and old machinery *versus* large mills and new machinery, and, of course, the latter win. The exports of yarns and goods to India are larger than ever they were, and the yarn and cloth produced in Bombay is chiefly at the expense of the native hand spinners and weavers. It is true that Lan-

cashire has lost a large part of what is termed the coarse trade, but it has gained in other departments, and the Rossendale valley spinners have been left behind because they have not moved with the times. They have been supplanted, in fact, by Oldham; and the new mills have produced yarn so much quicker than the old ones, and in such greatly increased quantities, that consumption has not been able to keep pace with supply. This is the secret of the present depression. But the 'strike' at Oldham, through which some 7,500,000 to 8,000,000 spindles have been standing idle for about eight weeks, and 'short time,' which has been more or less in operation elsewhere since March, are rapidly bringing about the much desired equilibrium. The same process is going on in the United States and on the Continent. Stocks everywhere are greatly diminished, as they were in 1882 and 1879, while prices are lower than at the opening of any season since ante-war times. We shall probably not have to wait long, therefore, for a distinct improvement in the state of trade."

MINING NOTES.

By T. K. BRUNER, Salisbury, N. C.

CORUNDUM.

This valuable mineral is distributed over a large territory in North Carolina and in Northwestern Georgia. In North Carolina it occurs in nearly all of the counties from Iredell west to the Tennessee line. The most noted localities for corundum are in Madison, Haywood, Jackson, Macon, Clay, Cherokee, Mitchell, Wilkes, Gaston, Rutherford, McDowell, Burke and Iredell counties. In the

TREMONTANE DISTRICT

of North Carolina there is what Dr. Smith calls a "zone of chrysolite" protruding from the mass of azoic rocks. This zone, or ledge of chrysolite, forms the most common matrix for the corundum of that section. It extends from Mitchell county, in North Carolina, to Union county, in Georgia, a distance of more than a hundred miles. This will afford an idea of the extent of the corundum producing area in North Carolina.

MINING

for corundum is only conducted at a few localities in each of these States. The recent work of Dr. C. D. Smith, mineralogist, in Iredell county, where he has been searching for corundum, has not resulted so favorably as was anticipated. The failure may be accounted for in several ways: first, the localities visited had already been explored by Mr. J. A. D. Stevenson, of Statesville, (local authority on minerals) who had gone over the ground very thoroughly; and secondly, the exceedingly brief time devoted to the work precluded the possibility of any very extended research. He says that his observations point to sufficiently encouraging indications to justify further search; yet he inclines to the opinion that the occurrence of corundum in Iredell, in sufficient quantities to make it of commercial value, is problematical.

ASSOCIATIONS, COLOR AND STRUCTURE.

It requires an expert to identify corundum in the localities named. It does not occur alone, but is associated intimately with other minerals of kindred elements. Its partial list includes rutile, margarite, perchlorite, greenish black spinel, tourmaline, feldspar, zoisite, actinolite, smaragite, kyanite, albite, tremolite, chrome, pyrophosphate, picrolite, fibrolite, steatite, marmolite, chrysolite, hornblende, magnesian, gneissic and other rocks, almost *ad infinitum*. The associated minerals are generally the result of the alternation of corundum, which furnishes the alumina base for their formation. Corundum has a large range of color, including pink, red, yellow, gray, brown, blue,

and all the shades belonging to these colors, besides white and black; it may be transparent, translucent, opalescent or opaque. In structure it may be massive or crystalline, with or without cleavage, striated one or two ways, striæ crossed obliquely or at right angles, and *et cetera*. This mineral, which is next in hardness to the diamond, has been serving the busy world almost exclusively as an abrasive, except when fine enough for gems; the oriental ruby and sapphire are crystals of corundum. But it is now being sought as

A SOURCE FOR ALUMINIUM.

Col. Wm. Fishmouth, of Philadelphia, has made discoveries which, it is claimed, cheapen the production of this metal very much. As a result, it is probable that corundum mining will be stimulated. The largest deposit in this country is pointed out above. By this process the corundum is first converted into a sulphate of alumina, from which the alumina is precipitated; then it is formed into a chloride, from which, by the new process, metallic aluminium is precipitated in sodium vapors. Aluminium is a silver white, non-tarnishing, non-corrosive and lightest metal in the world. Its specific gravity is only 2.67—nearly five times lighter in bulk than silver. It is both malleable and ductile, is of great tensile strength and is susceptible of a high polish. It also alloys with most any metal except lead and mercury.

USES OF THE METAL.

This discovery, if it really does cheapen to any great extent the production of this metal, is destined to open a range of possibilities heretofore thought out of the question, because of the great cost of production. Now the range is almost limitless. By reason of its extreme lightness and great tensile strength it will doubtless give a new impetus to discoveries in aerial navigation. It will take the place of silver and steel in the manufacture of surgical instruments, and may come into extensive use in the manufacture of ware for table use, in fact, take the place of silver in the domestic arts. Where lightness, strength and freedom from all forms of corrosion are desired, aluminium most displace silver.

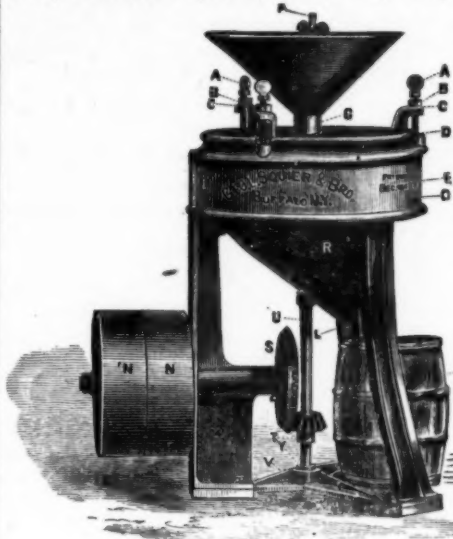
Rice Machinery.

There seems to have been no material improvement in the methods of cleaning rice during the historic period of our race. As in the days of Abraham, so now, the common method of hulling rice, the world over, is by pounding it in mortars,—a slow, laborious and wasteful process.

Many efforts have been made by the inventors of many countries and many ages, and many large fortunes have been spent in futile attempts to find some better method of preparing for use this important article of food, but the inherent difficulties of the case have been too great to be overcome, and the mortar still retains its supremacy as the best known implement for accomplishing the desired end. In the large steam mills, where rice is cleaned for market in large quantities, the mortars are still used as a matter of necessity, while other appliances are added to assist the process of cleaning; but these appliances do not materially diminish the breakage and waste of the grain, nor the labor of cleaning it. In rice producing countries, where rice is the staple article of food, the larger part of the crop is cleaned in hand mortars, as no hand machine has ever before been devised that would answer as good a purpose even as the mortars. Heretofore, it is said, there has been no hand-rice huller to be found in the market that was good for anything.

At the solicitation of many friends in the tropics, who had become impressed with the superiority of the celebrated sugar machinery manufactured by the Geo. L. Squier Manufacturing Co., of Buffalo, New York, they were induced to commence a series of experiments in cleaning rice, with a view to

constructing machinery better adapted for the purpose than anything heretofore known. After some years of experimenting, and the expenditure of large sums of money, they finally succeeded in producing machinery.



THE AMERICAN RICE HULLER NO. X.

which is said to be a decided advance over any machinery heretofore invented for this purpose.

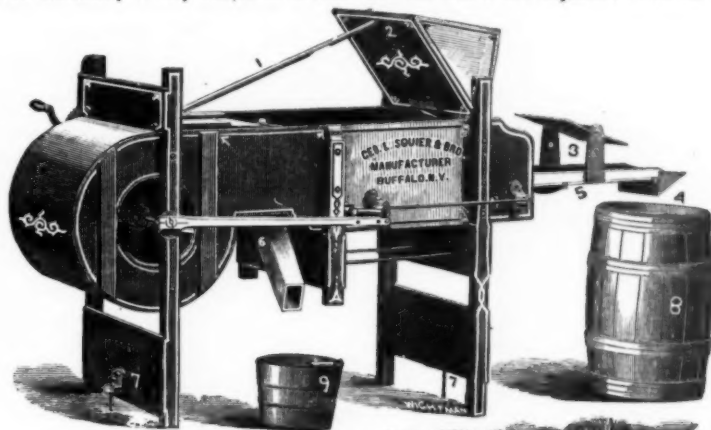
This machinery is very simple in its con-

struction and operation, durable, and the wearing parts easily and cheaply repaired, requires comparatively little power to drive it, and does its work rapidly and thoroughly, per pound more than the best rice now to be found in the market. The grains are uninjured, the enamel uninjured, and the rice has a clear transparent appearance, which fully entitles it to the appellation of pearl rice. It is well known that in the ordinary methods of cleaning all the rice is more or less bruised, much of it is broken so that its value is materially reduced below what it would be if the grains were uninjured, and a considerable percentage is powdered and mixed with the meal and rendered comparatively worthless. Nearly or quite all this loss and damage is avoided by the use of this machinery, for it saves all of the rice, and puts it in the most valuable possible condition for use or market. In this item, alone the machinery will save its cost in a very short time.

The hullers, made by this company, hull the rice with but small expenditure of power, and break but very little of the grain. Their small power hullers are said to afford the planter the only machines that have yet been devised to enable him to fit his own grain for market. While

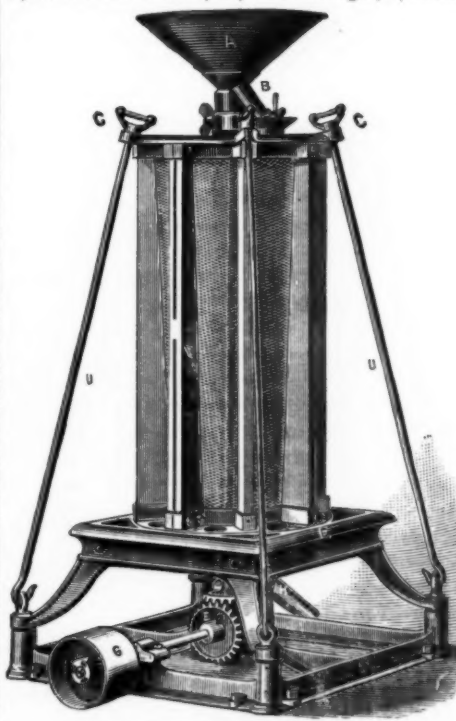
the manufacturers do not claim perfection for their hullers, they do claim that they are the best that can be found in the market.

No one who is not acquainted with the diffi-



THE AMERICAN SEPARATOR NO. X.

culties to be overcome in cleaning rice, can appreciate how many of those difficulties they have actually overcome in the construction of their hullers.



THE AMERICAN RICE POLISHER NO. X.

with little or no breakage, injury or waste of the grain.

The rice cleaned by this machinery is claimed to be superior to anything ever before produced, and worth one to two cents

per pound more than the best rice now to be found in the market. The grains are uninjured, the enamel uninjured, and the rice has a clear transparent appearance, which fully entitles it to the appellation of pearl rice.

No huller of any kind has ever yet been made that could hull every grain. There are always a portion of the grains that are shrunken or green, or from various causes more difficult to hull than the rest that pass through the huller unhulled. Even the large hulling stones used in rice mills leave quite a large per cent. of the grain unhulled. Hence they consider their separator to be the most important machine in their system of cleaning rice, for it accomplishes what has been heretofore deemed an impossibility, viz: While it blows out all the chaff from the grain after it has passed through the huller, it, at the same time, takes out all the unhulled grains that have escaped hulling in passing through the huller the first time, and delivers the hulled grains by themselves, ready to go to the polisher. The unhulled grains can then go back to the huller by themselves, so that none of the grain is lost, and none of it injured in attempting to hull the grains that are most difficult to hull.

The most experienced rice millers have heretofore deemed it utterly impossible to separate the unhulled grains from the hulled by machinery, and hence, in all the old processes of cleaning rice all have gone together into the mortars, and that which was already hulled has been pounded and

bruised and broken in the endeavor to hull the few grains that are most difficult to hull. All this difficulty is effectually overcome by the use of their separator, which is an absolute necessity to the proper cleaning of rice.

The separator will also clean the rice of trash and foreign seeds before it goes to the huller.

To complete the cleaning of rice, especially for market, it is necessary to remove the inner cuticle. For this purpose this company have constructed a polisher which is simple and durable, and which effectually removes all the cuticle without injuring the enamel, giving the rice a most beautiful appearance. The operation of the machinery is simple. When large amounts are to be cleaned, it is better first to send the paddy through a rotary screen to take out the stones and coarse trash, then put the paddy through the Separator to take out the dead grains and seeds, then through the huller, which, when properly worked, will hull eighty to ninety-five per cent., then through the Separator to take out the chaff and unhulled grains, then through the polisher to take off the inner cuticle. Thus by means of three machines, all simple and easily worked, the rice is cleaned with little breakage or waste. In the large rice mills where rice is cleaned for market, it undergoes ten to fifteen different manipulations, by means of which a large percentage of the grain is entirely wasted and lost, much of it more or less broken, so that its market value is much less than it would be if cleaned by the Squier machinery. The general use of this machinery will thus add thousands of dollars to the value of the rice crop every year.

This company have sold this machinery for several years in their foreign trade, and it is now in use in almost every rice-growing country in the world. In almost all cases it gives entire satisfaction, yet in some cases the purchasers have failed to set it up and run it right, or have expected too much of it, and have been disappointed in it. They do not guarantee it to give satisfaction since they cannot furnish brains to set up and run every machine they make. For this reason they never guarantee any of their machinery, as it goes all over the world, and they cannot follow it up to show every man how to work it. But they offer the machinery on its own merits, and every man must judge for himself whether it will answer his purpose or not.

They manufacture this machinery in sets of different sizes to meet the wants of all classes of rice growers—small sets for hand power, medium sets for animal power and large sets for steam or water power.

One of the great advantages of this system of machinery for hulling rice is the fact that all the machines can be duplicated, and an increase of production attained, simply by duplicating the machines, the same as is done in a cotton factory. The work is not done on single large machines, but as many machines of each kind are used as are desired to do a given amount of work, and as business increases similar machines are added from time to time as wanted. So with this rice machinery a planter may buy a single set and learn to use it, and see how it answers his purpose, and then add additional sets from time to time according to his wants.

THE Babcock & Wilcox Company, of New York, have recently patented a boiler furnace, the principal feature of which is the checking of the gases, so that they do not reach the surface of the boiler until they are consumed. The spaces between the front section of the boiler tubes are filled with hollow fire-clay bricks. Air is admitted through small openings in the wall, and mixes with the gases generated by the burning of fresh fuel. The gases being highly heated in passing through the flues, ignition takes place and complete combustion is effected by the time the gases reach the top of the section, and before they come in contact with the bare water tubes in the succeeding section.

CONSTRUCTION DEPARTMENT.

WE PUBLISH, every week, a list of every new factory, of whatever kind, projected anywhere in the South; every railroad undertaken, and every mining company organized. This information is always fresh, and, by enabling manufacturers to correspond with the projectors of such enterprises before their supplies of machinery have been purchased, is of great value. Manufacturers will find it to their interest to read this department carefully each week.

ALABAMA.

Jas. A. Andrews has contracted to build 7½ miles of the Birmingham & Sheffield Railway. R. G. Hervey, Sheffield, can give particulars.

The Montgomery Water Works, Montgomery, Ala., have increased their capital stock \$40,000. The works will be enlarged and improved. D. S. Troy is president.

The contract for building the Brewton Institute, Brewton, Ala., has been let to Chas. Schneider, of Oshkosh, Wis.

The Bass Furnace Company, Rock Run, Ala., are building a tram road, and will erect an engine house.

Sherman Wright, it is reported, will enlarge his tannery and shoe factory, at Jacksonville, Ala.

David Moore has established a jug factory near Prattville, Ala.

Mr. Ward, of New York, and Mr. Porter, of Columbus, Ga., have, it is stated, purchased the old Ryder & Sanders foundry, in Eufaula, Ala., and have ordered new machinery with which to operate the foundry and a machine shop.

The Acid Iron Earth Co. has been incorporated at Mobile, Ala., by W. Conner, Jach. Rogers, Jno. L. Rapier and Mark Lyons. Capital stock \$50,000.

The Birmingham Steam Laundry, Birmingham, Ala., will put in a new boiler and other machinery.

It is probable that a soap factory will be built in Selma, Ala. A company, with capital stock of about \$25,000 or \$30,000, is being formed.

A stock company is being organized in Birmingham, Ala., to manufacture iron fence and railing. Capital stock \$50,000. B. G. DeFoe will be general manager.

ARKANSAS.

The Batesville Mining Co., Batesville, Ark., previously reported as organized, have a capital stock of \$50,000.

Mr. Polharnius and associates, Texarkana, Ark., have ordered machinery to increase the capacity of their ice factory to 20 tons a day, and machinery for electric lighting.

FLORIDA.

Joseph Boothby, Oriole, Fla., will put in planing machinery, and possibly shingle mill.

J. M. Lee, Sanford, Fla., will try to organize a company to build a street railroad.

William B. Roberts, Steven Jenkins and James M. Hunt have organized at Forest City, Fla., the Florida Preserving Company, capital stock \$10,000, to manufacture jellies and extracts.

It is reported that a \$30,000 ice company will establish an ice factory in Tampa, Fla.

A steam saw mill will be built at the new town of Parkersburg, Fla. W. A. Cooper, Parkersburg, W. Va., can give particulars. No machinery has been purchased.

Hardee & Heistand, Sanford, Fla., will establish an ice factory.

Martinez Ybor has purchased ground in Tampa, Fla., on which to build a large cigar factory and 300 houses for the use of his employees.

GEORGIA.

Ike Whitely has organized a company to establish a coffin factory at Rome, Ga.

Moyle Bros. are opening a corundum mine near Powder Springs, Ga.

George V. Gress, James C. Williams and John W. Pope, have formed the Gress Lumber Company, in Eastman, Dodge county, Ga., to manufacture lumber and general woodwork. Capital stock \$75,000, paid in.

J. C. Peck, Atlanta, Ga., will erect a brick planing mill 40x100 feet.

W. D. Young, Tallulah Falls, Ga., expects to organize a company to build a \$20,000 hotel.

The Excelsior Mills, Augusta, Ga., owned by J. M. Berry, are being enlarged, and new machinery put in.

The Independent Order of Odd Fellows of Savannah, Ga., previously reported as intending to erect a hall, invites bids for its construction. The cost will be about \$25,000.

\$3,400 has been raised toward organizing, in Conyers, Ga., a cotton-seed oil mill and guano factory. D. M. Parker can give information. The capital stock will probably be \$10,000.

KENTUCKY.

D. A. Wilson, Owensboro, Ky., has secured the Reinhardt & Marks factory, and will manufacture tobacco.

The Central Edison Light Company has been incorporated at Covington, Ky., by Henry Worthington, Archie Stewart and H. H. Hoffman, to furnish heat, light and power by electricity; capital stock is \$100,000.

Lewis Tachan, D. T. Hogan, A. L. Schmitt and H. W. Bohmer have incorporated the Oregon Gold Mining Company, of Louisville, Ky., to do a mining and milling business in Union county, Oregon. Capital stock not to be over \$1,000,000.

John B. McFerman, John M. Robinson, Lester Witherspoon, William O. Dodd, Romulus Payne and W. O. Harris have incorporated in Louisville, Ky., the Mexico American Supply Company, capital stock \$50,000, to introduce into Mexico machinery, implements and manufactured goods. A branch office is to be in the city of Mexico.

LOUISIANA.

B. D. Vittier, New Orleans, La., proposes to establish a cutlery factory at 23 Commercial Place, that city.

Proposals are invited for building a jail in Franklin parish, La.

Leon Dupuy, Breaux Bridge, La., has added a ginnyery to his saw mill.

MARYLAND.

P. C. Wolfe has improved and repaired his saw mill at Un on Mills, Md., and put in a new water wheel.

C. S. Day & Co., Kent Island, Md., are putting new machinery in their grist mill, and will add a hominy mill.

It is promised that the long-talked-of Maryland & Delaware Ship Canal will positively be constructed, at a cost of about \$8,000,000. Ferguson & Fairchild, of New York, are reported to have the contract for the entire work.

The United States Electric Light Co. and the United States Electric Lighting Co., both of Baltimore, have decided to consolidate as the United States Electric Power & Light Co.; capital stock \$500,000. The company will, it is stated, greatly enlarge their plant.

Christian Heurich, Washington, D. C., will erect an extensive new building for a brewery. It is reported that a million dollars will be put into this enterprise.

W. R. Richards has enlarged his grist mill at Navy Point, Md.

Mark Wineland and W. R. Percy, of Frostburg, Md., and others, are prospecting for silver, and have sunk a shaft near Cumberland, Md.

MISSISSIPPI.

J. W. Shaw, Water Valley, Miss., will, it is stated, remove his extensive foundry and machine shops to Natchez, Miss., and has secured D. McClure's foundry, where he will locate them.

NORTH CAROLINA.

A. W. Ellis & Co., Farmington, N. C., have purchased the machinery for their new flour mill, which they expect to complete by January 1st.

G. M. Webb and B. Blanton will shortly establish a tobacco factory in Shelby, N. C.

W. P. Hadley, Evans, Chatham county, N. C., whose mill was lately reported as burned, will rebuild at a cost of about \$2,500.

A. A. Springs, Winston, N. C., has purchased a prize factory, and will use it next season as a tobacco manufactory.

J. D. Gaskell, Salisbury, N. C., will enlarge his tobacco factory.

Ballard Bros., Asheville, N. C., are enlarging their building by an addition of 88 feet, three stories high, and will manufacture tin ware.

C. M. McNett, Washington, D. C., has contracted to establish electric light works in Raleigh, N. C.

Horne & Bartram have leased the Winingham gold mine near Asheboro, N. C., and will develop it.

Fleming & Chappel, Liberty Hill, N. C., are rebuilding their ginnyery, recently burned, at a cost of \$1,600.

SOUTH CAROLINA.

T. C. Robertson and Willie Jones, reported last week as having bought the Red Bank Cotton Factory in Lexington county, S. C., have associated with them John R. London and A. E. Hutchinson, of Rock Hill, S. C., and will organize a company, capital stock not less than \$50,000, to operate the mills. Improvements are contemplated, and electric lights will probably be put in.

TENNESSEE.

Holt, Hamby & Cribbs, six miles from Hillsboro, Tenn., have added planing machinery to their saw mill.

The East Tennessee Coal Co., Knoxville, Tenn., will, it is reported, put a new engine and other machinery, costing \$7,000, into their mines at Jellico, Tenn.

The Cleveland Woolen Mills, Cleveland, Tenn., previously reported as intending to rebuild their woolen mill at a cost of about \$40,000, have commenced work on it.

It is reported that Northern capitalists have purchased a site, and will erect a cotton-seed oil mill in Columbia, Tenn.

The Clarksville Creamery, Clarksville, Tenn., has been sold to Frank Gracey.

G. M. King is in Chattanooga, Tenn., with a view to building a chair factory for King, Blatherwick & Co.

The Nashville Fertilizing Co., Nashville, Tenn., have added \$6,000 worth of new machinery to their works, and are now building a large acid chamber.

The building of a stave factory and planing mill at McKenzie, Tenn., is being talked of.

TEXAS.

S. A. Kealy, Lewisville, Texas, has improved and remodeled his mill.

The Alliance Milling Company, Denton, Texas, previously reported as intending to build a flour mill, will also build a grain elevator.

The Houston Water Co., (T. H. Scanlan, president,) Houston, Texas, will want bids for new pumps shortly.

Miller & Shellenberger, Dallas, Tex., are making arrangements to start a brick yard near that place.

The East Dallas Water Supply Co., previously reported as organized in Dallas, Tex., have commenced work on their plant.

The Electric Light & Power Co. has been incorporated at Fort Worth, Tex., to establish electric light works; capital stock \$25,000.

The incorporators of the El Paso, St. Louis & Chicago Railway & Telegraph Co., previously reported, are Abner Tibbetts, Charles P. Patrick, Geo. B. Seymour, Henry L. Thomas and Thos. N. Deteioler, of El Paso, Tex., and Nicholas Galles and W. S. Hopewell, of New York.

B. M. Temple and Fred. Harris have secured the contract for building two wrought iron bridges for the Gulf, Colorado & Santa Fe Railroad, near Brownwood, Texas.

VIRGINIA.

The Richmond Schuyler Electric Light Co., of Richmond, Va., previously reported, have leased a building and ordered machinery.

The contract for the stone and brick work on the government building at Lynchburg, Va., has been let to Mr. McGowan, of Washington, D. C., at \$26,200.

WEST VIRGINIA.

The Great Kanawha Colliery Co., Mt. Carbon, W. Va., will build 21 new coke ovens.

BURNED.

Chair factory of Brisho & Kuhn, Nashville, Tenn.; loss \$1,500.

Gin of Bachman & Wemdeberger, Paige, Texas; loss \$2,000.

Gin owned by Mrs. McConnel, Silver Creek, Yazoo county, Miss.; loss \$10,000.

The saw mill of J. A. Quackenbush, Ridgeville, S. C., has been damaged by a boiler explosion.

Peters & Jones' large flouring mill, two miles from Knoxville, Tenn., reported as damaged by fire.

Saw mill of Ross, Campbell & Bryan, near Pine Bluff, Ark.; loss \$2,000. Will be rebuilt.

Empire Flouring Mills, Dallas, Texas, damaged \$3,000 by fire.

R. R. Harwell's cotton gin, near Shreveport, La.; loss \$3,000.

Drake & Bros' gin and mill, in Marlboro county, S. C.; loss \$1,000.

Mattress factory of Lottman & Bro., Houston, Texas; loss \$6,000.

S. Brand's sugar house, St. James Parish, La.; loss \$25,000.

Distillery of J. R. Mayberry, Alexander county, N. C.

Florence & Keath's gin, near Mesquite, Texas; loss \$5,000.

LOCKWOOD, GREENE & CO. MILL ENGINEERS

Office, 65 Westminster St., Providence, R. I.

Carefully prepared plans, specifications and estimates furnished for the construction, equipment and organization of new mills and the revision and improvement of old.

W. D. Hind's gin and press, Sumter, S. C.
The Clarendon Mills of F. C. Oakham, at Fayetteville, N. C., consisting of wool, carding and grist mill.

Ahrenbeck Oil Company's oil mills at Hempstead, Texas. Loss about \$86,000.

Gins of W. B. Hogan, Fairfield, and J. O. Patterson, Barnwell county, S. C.

Alderton & Company's spice manufactory, Galveston, Texas, damaged \$2,000 by fire.

C. C. Manssing's gin at Avalon, Texas. Loss \$2,000.

Will Want Steam Pumps.

HOUSTON, TEXAS, Oct. 14, 1885.

Editor Manufacturers' Record:

Shickle, Harrison & Howard Iron Co., of St. Louis, Mo., have the contract to erect our steel water tower, 30x150 feet. We will receive bids for our new pumps this winter.

T. H. SCANLAN,

Pres. Houston Water Co.

Will Develop Gold and Silver Mines.

TECUMSEH, ALA., Oct. 15, 1885.

Editor Manufacturers' Record:

I own mineral land in Cleburne county, this State, on which I have discovered both gold and silver, which shows on analysis \$74.44 per ton at a depth of ten feet. We expect to commence developing the mines in a few days, but have no definite plans as to the work yet.

W. A. GLOVER.

A \$500,000 Mining Company.

JOHNSTOWN, PA., Oct. 16, 1885.

Editor Manufacturers' Record:

A company has been formed under the name of Keystone Manganese & Iron Company, to operate in manganese ores in Arkansas, and to manufacture ferro-manganese. Operations will probably be commenced in a month.

C.

A Box Factory.

ORLANDO, FLA., Oct. 10, 1885.

Editor Manufacturers' Record:

We have purchased a plant here for manufacturing orange boxes, and will double the capacity at once; expect to make 1,000 boxes per day as soon as our new machinery arrives.

DENNIS & PETTEYS.

To Double Capacity.

SALISBURY, N. C., Oct. 12, 1885.

Editor Manufacturers' Record:

We are now making arrangements to increase our capacity (tobacco factory) to double the amount worked last season.

J. D. GASKILL.

ANNISTON, ALA., Oct. 12, 1885.

Editor Manufacturers' Record:

Our stockholders meet Nov. 4, at which meeting the subject of doubling our capacity will be discussed.

P. B. BROWN,

Manager Anniston Ice Factory.

ATLANTA, GA., Oct. 14, 1885.

Editor Manufacturers' Record:

We have added the manufacture of packing boxes to our regular business.

ATLANTA WIND ENGINE CO.

Building a Flour Mill.

FARMINGTON, DAVIE CO., N. C., Oct. 12, '85.

Editor Manufacturers' Record:

A. W. Ellis & Co. (A. W. Ellis & F. M. Johnson) are building a flouring mill at this place. They have bought a 50 horse-power boiler and 35 horse-power engine to place in said mill. They think to start the mill by 1st January next. They are also running a steam saw mill at this place.

F. M. JOHNSON.

A \$30,000 Tobacco Factory.

SHELBY, N. C., Oct. 14, 1885.

Editor Manufacturers' Record:

Another tobacco factory will be in operation in Shelby, N. C., soon, owned by G. M. Webb & B. Blanton, representing \$30,000 capital. Bostic Bros. & Wright's and J. W. Mangum's factories are now doing a good business.

BOSTIC BROS. & WRIGHT.

Enlarging a Furniture Factory.

CHARLOTTE, N. C., Oct. 14, 1885.

Editor Manufacturers' Record:

We first put up a building 80x35 feet, two stories, but find that we cannot supply the demand for our goods; hence are putting two additions to our factory, one 37x26 feet, two stories, and one 20x26 feet, for our chair machinery. Will put on about 10 more men as soon as extension is completed, which will make our force about 30 men. Our prospects are fair. We think can sell all we make. Use hardwood for all our posts, which is better than usual run of common goods.

ELLIOTT & MARSH.

Remodeled Mill.

BUCKHANNON, W. VA., Oct. 10th, 1885.

Editor Manufacturers' Record:

The Upshur Handle Co. will not rebuild. D. D. T. Farnsworth has just remodeled his mill, adding a 90 horse-power engine, making it one of the best in the State, being supplied with both steam and water-power.

TOM G. BRADY.

Enlarging Mill.

AUGUSTA, GA., October 17, 1885.

Editor Manufacturers' Record:

The addition to my present flour mills is a roller corn meal mill, (Case system,) six sets Case Double Rolls, etc.; capacity 2,000 bushels or 500 barrels of meal per day. The building is an addition of 30 feet in width and 80 feet long, 3 stories, 14 feet between ceilings.

J. M. BERRY.

New Fence Factory.

BIRMINGHAM, ALA., Oct. 19, 1885.

Editor Manufacturers' Record:

The fence company which is now being organized here are not pushing the subscription list, but working to secure the best men in their organization, and when the company has been formed, will be the largest fence company in the South, their stock being, if successful, \$40,000 to \$50,000, a large amount of which has already been subscribed. Their first building is to be 150x60 feet, part double story.

B. SLICK.

A New Jail.

ASHVILLE, ST. CLAIR CO., ALA.,

October 19, 1885.

Editor Manufacturers' Record:

The contract for building the new jail for this county was let by the commissioners to McDonald Bros., of Louisville, Ky., for \$3,800, exclusive of the material of the old building, which would put the value of the structure to the county at not less than \$5,000. The work of building is going on, and the rocks for the first story are taken and cut from the quarries in the hills east of this town.

GEO. R. CATHER.

A Cotton Seed Oil Mill.

CONVERS, GA., Oct. 19, 1885.

Editor Manufacturers' Record:

I cannot say that the cotton seed mill and guano factory will be built, but my opinion is that the oil mill will be built, as half of the stock has been subscribed. If the amount of \$8,000 can be raised by subscription, of which about \$4,600 is already taken, (and the books have only been open one week) I think it is sure to be built.

D. M. PARKER.

Improvements at Cape Charles.

CAPE CHARLES, VA., Oct. 17, 1885.

Editor Manufacturers' Record:

Mr. Wm. Keyl, civil engineer in charge of works at this place, has kindly furnished me the following particulars of harbor improvements completed since my letter of Aug. 7. There has been constructed a 1,500 feet inlet connecting with Cherrystone channel to the harbor basin, it being 1000 feet long by 570 feet wide, with slip 325 feet long for steamers to enter for transfer of sleeping and freight cars by iron float bridge. The channel at mouth of inlet is 15 feet deep; width, 250 feet, depth decreasing to 10 feet in the harbor. The solid bank cut through for inlet on shore was 9 feet above low water mark. The aggregate length of wharf built by the railroad company is 2,810 feet, while W. L. Scott has built on south side 1,175 feet, giving a total wharf frontage of 3,985 feet. From end of wharf on both sides is run out a raft the entire length of the inlet channel to its point of connection with Cherrystone channel aggregating 2,014 feet. The harbor lines enclose an area of thirteen acres, 450,000 square yards of mud and earth having been excavated from bottom of old lake and carried to a place of deposit south of Cherrystone channel. The bottom of the lake is on a level with low water mark of bay at shore inlet. The south side of harbor, known as "Hollywood," owned by Hon. Wm. L. Scott, of Erie, Pa., has 1,175 feet of wharf, built at cost of \$10,000, with a railroad siding connecting with main track of N. Y. P. & N. R. R., 4,500 feet long, this, together with cleaning and grading of grounds, was done at a cost of \$5,000. Mr. C. H. Walbridge, manager for Mr. Scott, has had constructed one oyster packing house 40x100 feet with a capacity for fifty shuckers and storage of oysters, and is well arranged with offices, together with second story for sleeping room for hands. The north front of building faces on edge of wharf with front reaching railroad track, thus affording a fine opening for some enterprising men or firm to establish an oyster packing and shipping of fresh oyster business, having the facility of placing goods on the 9 P. M. express train, reaching Philadelphia next 4 A. M., and New York 7 A. M. The rent of the house will be taken in oyster shells at market value for a term of years. Dredging operations further up lake and extension of bulk on Hollywood side are proposed for next spring.

Survey for work, already completed, commenced Feb. 1, 1884; contract let in May; operations begun June 11; dredging completed Aug. 14; bulkheads finished Sept. 20, 1885.

CHESAPEAKE.

Prospective Railway Building.

The figures in the Railway Age of October 1 summarizing the mileage of new railways under construction and projected thus far during 1885 have naturally attracted much attention and comment. Those figures represent facts, not surmises. They were obtained and arranged with much labor, extending over several weeks, and when the totals were footed they surprised even the compiler. They indicate preparations for an amount of railway building in the near future which, without thoughtful investigation of the subject, seems almost incredible, and yet we have the evidence of their accuracy in book form, showing separately each enterprise which helps to make the grand total. The facts are a matter of record; for the existence of those facts the Railway Age is not responsible. Indeed we might go further and say that the whole truth has not been told. Numerous enterprises originated in previous years and still possible of completion, other enterprises projected this year and possibly some already undertaken, which may have escaped our researches, and the numerous undertak-

ings which are every week being added since the record for the first nine months was given—all indicate that the possibilities of future railway building have been understated rather than overstated.

What proportion of these enterprises will be speedily built of course we do not pretend to predict, but we do feel safe in saying that it will be much greater than most people seem yet to realize. Because the figures given seem incredible it is not safe to pronounce the results which they suggest impossible. On the other hand intelligent investigation will show that an addition to our railway mileage far greater than they suggest is not only probable but inevitable. At what rate per year the new mileage will be added no one can say. In the year 1882 more than 11,500 miles of new lines were completed; in the five years previous to 1884 the total new mileage was 39,727, nearly 8,000 miles a year, on the average. Who shall say that this activity may not be equalled or even exceeded in the next five years? As to possibilities of railway building in the United States in the indefinite future what limit can be placed? A few comparisons on the basis of area are wonderfully suggestive. Take the average of miles of railway to square miles of territory and we find that the average for—

	Miles of railway.
Wisconsin equals, for the United States.....	228,500
New York " " " " " " " " " " " "	443,300
Illinois " " " " " " " " " " " "	467,000
Massachusetts " " " " " " " " " " " "	711,000

Wisconsin is still far from being supplied with railways; Massachusetts is comparatively well supplied. These examples are taken at random, and are merely given as food for reflection.

As indicating the hesitation of some—particularly in Eastern States—in realizing the possibilities of a great revival in railway building, we reprint elsewhere a thoughtful editorial in the Iron Age, in which it is argued that the revival indicated by our statistics can hardly have begun, because there has not been noticed any extraordinary effort to borrow money for new enterprises in Wall street. But this argument loses sight of several vital facts: First, as our figures showed, the construction under way and projected is, to a large extent, that of short roads for local purposes, which, individually, do not require a large amount of money, and for which the means can be provided at home. Second, many of these lines are to be branches or extensions of existing roads, owned mostly by companies amply able to build them without asking help in Wall street. Third, in many States local aid is being voted liberally for new railways, obviating the necessity of borrowing largely abroad. Kansas communities at the present time, as a notable example, are voting subsidies for new enterprises with almost extravagant freedom. In short, the new era of railway building promises to exist on a different and better financial basis than that which has characterized the past. There will be more building of roads, because they are needed, and less building of parallel and purely speculative lines.

That, commencing with 1886, railway construction will be renewed with great activity, seems now too evident to be disputed, and that such activity means a revival of life in all branches of manufactures and trade, it needs no argument to prove.—The Railway Age.

MR. GEO. R. CATHER, of Ashville, Ala., writes:

"The value of the RECORD to the South cannot be estimated; it is prodigious. Your work is, in the highest sense, wonderful journalism."

WAGES, LIVING AND TARIFF, by F. A. Hartshorn, Troy, N. Y., is a neat pamphlet of 100 pages, devoted to a discussion of the tariff question that is well worth reading. It presents the value of a protective tariff in such a shape as to carry conviction.

"Triumph" Gang Edger.

The engraving gives a good idea of the appearance of an improved "Triumph" Gang Edger, brought out by Smith, Myers & Schnier, of Cincinnati. This machine has been designed to meet the demand for an accurate, convenient and durable edger. The saw mandrel and feed rolls are fitted in a heavy cast-iron frame; this frame is strongly made and braced in such a manner as to prevent springing or twisting out of line. The saw mandrel is of steel, 3 inches in diameter, it has a double key-seat, and runs in boxes 12 inches long, which are lined with the best Babbitt metal. The driving pulley is 12 inches diameter, 10 inch face. The pressure roll is six inches diameter; it is hung in a swinging frame, thus avoiding any springing of the supports and insuring perfect alignment with the feed rolls and saw mandrel. It is raised and lowered and held in any desired position by means of a catch lever at the front end of the machine; this is a very convenient arrangement, and dispenses entirely with the overhead rigging usually employed for this purpose.

The shifting of the saws laterally along the mandrel is accomplished by means of a forked jaw which grasps the saw collar on either side; to this is attached a wire rope, this rope winds round a small drum on the end of a shaft extending back to the feeding end of the machine. By this means the saws can be moved rapidly and easily, one turn of the hand wheel giving a movement of 18 inches to the saw. Ample provision is made for taking up any stretch in the wire rope. The jaws that grasp the saw collar are hollow, and are intended to be filled with waste or felt saturated with oil; in this way the collars are kept well lubricated. Adjustable guide-pins are fitted on this same jaw near the cutting edge of the saw. The saws can be securely locked in any desired position by means of a cam-lever attached to the shifting shaft, in convenient reach of the operator; by forcing the cam down against a collar, the shaft is forced forward and the small rope drum on the end of the shaft is brought in contact with the iron frame of the machine. This method of shifting, guiding and locking the saws is claimed to be a perfect guarantee against binding and heating and insures the cutting of perfect lumber.

The saws may be taken from the mandrel very quickly by throwing back the jaw (as shown in small cut) loosening the caps on the mandrel boxes, pulling the mandrel forward so as to clear the box a few inches, and then sliding off the saws. Attached to the end of the forked jaw which moves the saw, and on the shaft which supports the same, are fitted spur feed collars, corresponding in number with the saws on the mandrel; these feed spurs move with the saws, and being directly in line with them, that part of the lumber marred in feeding forward is cut out by the saws. A fluted feed roll 4 inches in diameter is fitted behind the saws.

The front table or frame is provided with three wrought iron idle rolls 3½ inches in diameter, and two are supplied to be used at the rear end of the machine. The side or lumber guides are stationary, and are banded with iron.

This edger is made with from two to five saws. The machine is 48 inches wide; all the saws can be moved together so as to cut 3-inch strips. The widest board that can be edged on a two saw machine is 42 inches; a three saw machine, 39 inches; four saw, 36 inches, and five saw, 33 inches. For further particulars address Smith, Myers & Schnier, Cincinnati, O.

If you are not already a subscriber to the BALTIMORE MANUFACTURERS' RECORD, send us \$3 and you will receive it regularly for one year, or six months for \$1.50.

Pig Iron Making at Birmingham.

[Special correspondence MANUFACTURERS' RECORD.]
BIRMINGHAM, ALA., Oct. 19, 1885.

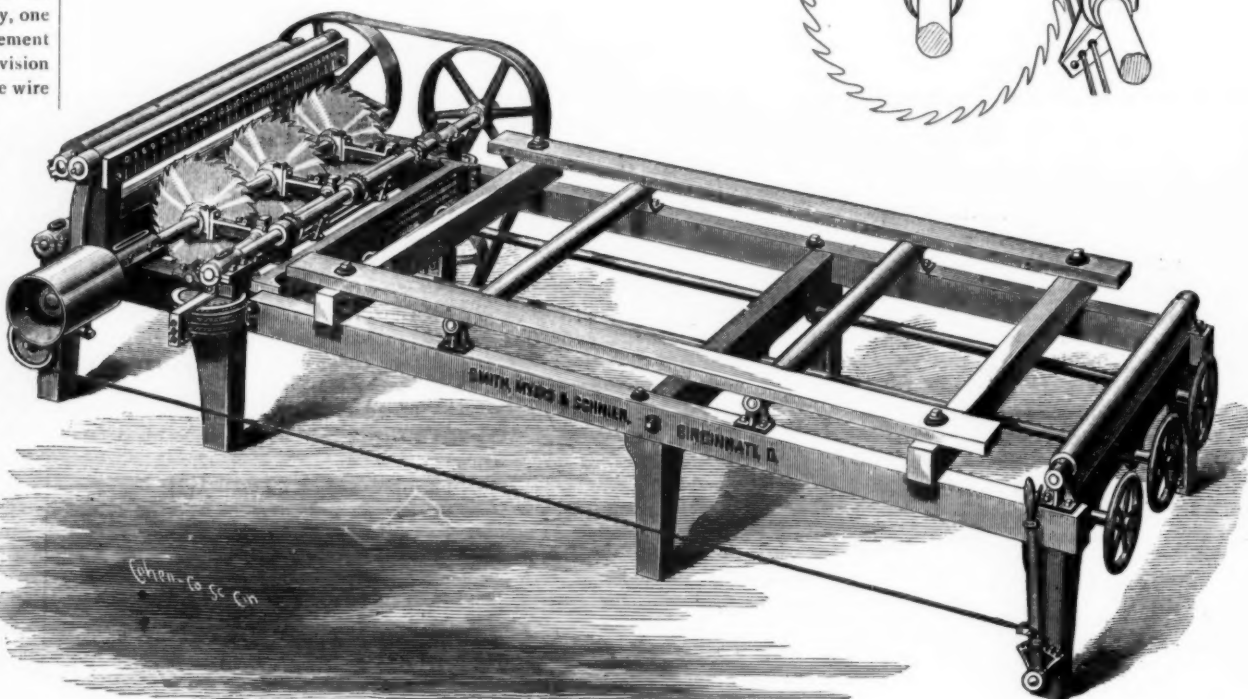
But little change from the situation reported last week is to be noted in the local iron interest. The demand for mill iron is still very active at quotations, and that for foundry nearly, although perhaps not quite as good. The leading furnaces are as full of orders as they care to be, one of the largest reporting sales ahead to the limit of capacity for 90 days. That probably constitutes the extent to which any of our iron makers have gone in the direction of engagements for future delivery, and the indications are that the majority have been even more conservative. The opinion appears to be general that better prices will be realized before long, and there is little disposition to accept orders much ahead on the basis of present prices. Current quotations may be stated:

No. 1 Foundry, per ton.....	\$15 00@15 50
No. 2 Foundry, per ton.....	13 00@13 50
No. 2½ Foundry, per ton.....	12 00@12 25
No. 1 Mill, per ton.....	11 00@11 50
No. 2 Mill, per ton.....	10 75@11 00

At the Birmingham Rolling Mills there is a good deal of activity, based to some extent

It is difficult to rent any house; and very difficult indeed to find desirable improved property either for rent or sale. The rapid extension of the Elyton Land Company's street car system is bringing a great deal of charming suburban property within a short ride of the business center, and improving outside property generally. The same corporation has just completed a substantial bridge over the railway tracks which traverse the town, thus bringing the two divisions much more conveniently together than they have been. The Baptists are building a handsome house of worship—handsome enough to contest the architectural palm with the stylish brick edifice of our much oppressed and down-trodden brethren of the negro race, who have managed, however, to maintain the best thing of the kind in the Iron City for some time. Parties interested in the establishment of a bridge plant here are still working at the problem, and the arrangements for the chain works are being pushed actively. There is a fair prospect that an iron fence factory will be started very shortly, and many other projects, as yet less definite, are talked of. With all the bustle and progress of a far

Districts of the United States," published in the Age of Steel, Mr. John Birkinbine, M. E., has recently devoted one to the district of Alabama. Mr. Birkinbine refers to the recent discussions regarding the cost of iron at Birmingham, and observes that "parties outside of the State seem as anxious to prove that the furnaces are losing money, as those primarily interested in the section are to demonstrate that they can make iron cheaper than elsewhere." He then proceeds to give several estimates of a sort already familiar to the readers of this journal. One is presented on the authority of a "Western furnace manager," who made "a personal investigation of Birmingham as a blast furnace location," and who came to the conclusion that our iron is costing the producers \$13.12 per ton. Glancing over his figures it is reasonably plain that the Western man has drawn quite as much upon his Western experience in the statement as upon the facts, which latter he would find it hard to get out of our iron masters. The one fact of public certainty in the matter he has captured, and is honest enough to use it. That is, that iron ore is to be had at \$1.00 per ton! The next authority quoted by Mr.



"TRIUMPH" GANG EDGER.

on an enhanced demand for the seasonable specialty of light sheet iron, which sprang up a few weeks ago at an advance upon previous quotations. Light sheet is now steady at \$3.25@3.75. Merchant bar is in good request, and steady at \$1.60@1.75, according to specification and quantity. In other departments of rolling mill production there is nothing new deserving mention.

In general business lines the trade of the city is in a satisfactory condition, although wholesale grocers and lumber dealers complain that their margins of profit have nearly disappeared under sharp competition. Building improvements are active, and a number of business edifices, including a large store and office block, and a building for the new savings bank, are under way. In less important constructions, such as residences, and many of them worth considerable sums, new ones are starting in every direction every day. Perhaps one of the best illustrations of the substantial growth of the city is to be found in the fact that, notwithstanding the activity in this line during the past year, Birmingham is still one of the most crowded cities in America.

Western town, values have not been appreciably inflated. Good residence lots are yet to be had in desirable locations at \$10 per front foot; taxes are low and the city indebtedness nearly nominal, while its credit is excellent. As far as I can judge, there is not much wanting to make the people of this happy valley entirely contented, excepting some assurance that Congress will not raise the tariff question next winter; and that the monometallists will not succeed in curtailing the currency of the country. I do not believe that the people of this and neighboring States would much object to an arrangement for the coinage of full value silver dollars in place of the 85 cent coins now in use; but I think it plain that they are strongly wedded to silver coin in some shape. The East may have the power to raise these questions against the unanimous wish of the masses, but when the tussle comes it will be discovered that the West and South are as one, and that they control more than a few votes in the national legislature.

In the course of a series of interesting and valuable papers on "The Iron Producing

Birkinbine is an "Eastern blast furnace manager," who furnished the following estimate after an examination on the ground:

2 tons of coke, at \$2.25.....	\$4.50
2½ tons of ore at \$1.50.....	3.75
1 ton of limestone.....	.50
Labor and management.....	2.00
Incidentals and repairs.....	1.00
Total.....	\$12.05

The Western furnace manager, who, Mr. Birkinbine asserts, is entitled to "full credit and consideration," found that Birmingham furnaces were buying ore at \$1.00 per ton. If we combine that discovery with the figures on the other accounts given by the Eastern furnace man, we shall have a result not greatly though somewhat above the cost of iron production in this district as claimed by local authorities; thus:

2 tons of coke, at \$2.25.....	\$4.50
2½ tons of ore, at \$1.00.....	2.50
1 ton of limestone.....	.50
Labor and management.....	2.00
Incidentals and repairs.....	1.00
Total.....	\$10.50

Mr. J. C. Bayles, editor of the New York Iron Age, is also quoted in an estimate, placing the cost of Birmingham iron at

\$12.35. None of the gentlemen who have figured on this problem, as far as I am aware, have claimed any absolute knowledge in the premises, but have all *estimated*. They could not well do otherwise, since nobody outside of the furnace proprietors themselves is in a position to know exactly what the actual cost may be—and they have thus far kept the secret. So the *quidnuncs* of the trade are in little danger of having their figures picked in pieces in any way to threaten their sense of satisfaction with their own conclusions. There is a much more efficacious way to dispose of the matter, as far as general results are concerned, and beyond that it is little likely that the question will reach a solution at the present. Since Mr. Bayles made his estimate, the journal over which he presides with grace and ability, has alleged that the Birmingham iron masters were breaking themselves as well as the markets with their cheap product. As the Birmingham furnacemen have been able to hold their own throughout the darkest period of the general depression, since they even made money in spite of the unfavorable trade conditions, while their Eastern competitors lost money, and since their iron cost them enough less than the same commodity cost Eastern furnaces, to enable them to ship east and to undersell the local markets in Philadelphia and Pittsburgh, it is reasonably manifest that the Birmingham producers enjoyed an advantage somewhere, and one that it will be hard indeed for the "parties outside of the State" who seem so "anxious to prove that the furnaces are losing money," to figure out of existence. Whatever the gentlemen who are handiest with the pencil may choose to calculate, the general public will incline to the opinion that an Alabama iron district, which could sell its product profitably in Eastern markets throughout the duldest months of 1884 and 1885, go on making extensions, starting new plants and demonstrating a continuously increasing prosperity to this date, must command exceptional conditions in the cost of production. Probably nobody will care to call in question the financial soundness of the Birmingham iron interest; and the facts of the Birmingham competitors in Eastern markets are too notorious to require re-statement. There remains then nothing of importance to your readers to prove. Figures will lie sometimes, and especially when carefully elaborated to serve a purpose; but facts are the veritable "little hatchets" of our pilgrimage here below, and the facts, not to mention the reasonable inferences, all favor the current belief that, despite the anxious denials of our Eastern friends, the Birmingham district can and does make iron at a cost low enough to survive under market conditions which would blow out most of the stacks in Pennsylvania. G. B. W.

Mica in North Carolina.

BLUE WING, N. C., Oct. 12, 1885.

Editor *Manufacturers' Record*:

While for many years past the extreme western part of North Carolina has been the main substantial source from whence mica has been mined and furnished the commercial world at home as well as abroad, the Middle Section of the State—the tertiary and quaternary localities—of late has received some notice from the prospector with more than ordinary success. Ultimately the Middle Section will loom up promisingly as a producer of this useful and profitable mineral, though not to so great an extent, of course, as the western portion of the State. Recently, while on a prospecting tour through Granville, Franklin and Warren counties, I discovered a very fine mica deposit in a coarse granite formation. I took out blocks that would square 10 inches of a very pure and subtile quality. In the immediate vicinity of my discovery, there is a want of the tertiary sands which renders the soil more productive. At another point

some ten miles distant from the one above mentioned I found other promising indications, but lack of time did not permit of further investigation.

Very few persons I imagine are aware of the magnitude of the mica mining industry in the United States and especially of North Carolina. This State alone furnishes the bulk of this mineral to the world's markets. One mine in one of the Western counties furnishes a ton of marketable mica a month, and is justly considered one of the most profitable minerals mined. On account of its increasing demand in the manufacture of stoves it is receiving more attention at the hands of capitalists seeking profitable and secure investment.

C. W. EDGCOMBE.

Petroleum Gas.

We present herewith an illustration of Dr. Hirzel's gas system for the manufacture of gas from crude petroleum, grease or other fatty material, for illuminating or heating purposes.

This system is the invention of a German chemist, Dr. H. Hirzel, who has patented it in all the principal countries. It has received the highest medals at many expositions in Europe, and over 900 of the machines are now in operation. The largest one is in the city of Kasan, Russia, supplying over 12,000 burners with gas. The following claims are made for the apparatus and for the gas it supplies:

"Petroleum gas gives agreeable, mild white light, burning steadily without flickering, emitting no offensive odor and evolving no deleterious vapor, as does the so-called water gas, depositing no solid nor liquid residue in passing through even the most complicated net-work of pipes, retaining its gaseous form in the severest cold and under high pressure.

Owing to this purity and its high illuminating power—it being from 65 to 72 candle-power, while common gas generally varies from 14 to 16 candle-power—a burner consuming one cubic foot of petroleum gas per hour will give almost as much light as a burner consuming 5 cubic feet per hour of common gas—that is to say, a town requiring gas works of 20,000 cubic feet capacity of coal gas per day would only require a plant capable of furnishing 4,000 feet of this gas.

It will be plainly seen that Hirzel's gas apparatus can be erected at considerable less expense than coal gas works of the same capacity, the reasons being that it will require less space of ground, one-fifth the capacity of gas-holder and distributing pipes through the streets of the town; it will save in freight and handling coal, and what is the most important item, the running expenses will be far less.

The efficiency of this apparatus depends chiefly on the form, size and position of the gas retorts, generating from the material used the largest quantity possible of the most brilliant gas. Seventy to one hundred cubic feet of gas have been generated from one gallon of crude petroleum, depending

on the size of retort and quality of the oil.

The apparatus is built in six different sizes, viz: 50, 100, 140, 200, 300 and 500 cubic feet capacity per hour. The retort is set in a furnace especially designed for economy in fuel and convenience in repairing and operating. One man of ordinary intelligence can attend to several retorts.

After the distillation of the oil in the retort, the gas passes through a simple condenser for removing all vaporous and other residuary matter to the gas-holder, from which it is distributed in the usual manner to the consumers.

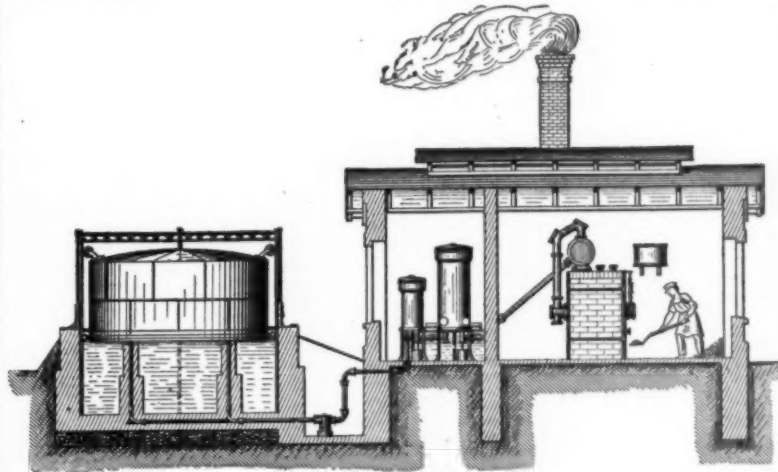
This gas can also be mixed with air in such proportions, by a specially constructed apparatus, to evolve an intense heat for cooking and heating purposes. In some instances it is also used to enrich an inferior quality of coal gas.

By the erection of this system of gas making, all nauseating odors with which coal gas works are usually surrounded are avoided.

The numerous advantages of this system of gas lighting, which has already been so extensively introduced in Europe, should recommend it to all contemplating the erection of gas works and to the public in general."

Further information can be obtained from L. Duvinage, 547 Lafayette avenue, Brooklyn, N. Y.

DORA'S DEVICE, a new romance by Geo. R. Cather, editor of "The Southern Aegis,"



PETROLEUM GAS WORKS.

Ashville, Ala., possesses rare power and interest, added to unquestionable originality and a highly attractive crispness of style. The author has striven to unite in his novel the main elements of popularity in fiction. He presents a commercial crash, a mysterious murder, an involved and difficult piece of detective work, a desperate struggle for leadership in society, true love, the course of which runs the reverse of smoothly, a mad infatuation inspired by a reckless and designing woman, a secret with a ghostly flavor, a charming picture of domestic life, a tissue of old-time legends and negro superstitions, a flirtation at a fashionable watering-place, which leads to a fatal duel, and various other matters. T. B. Peterson & Brothers, Philadelphia, are the publishers, price \$1.25.

ONE of the most notable volumes of the year, will be "Representative Poems of Living Poets, Selected by the Poets Themselves." The idea of this volume suggested itself to Miss Jeannette L. Gilder, who wrote to some seventy or eighty of the best known poets asking them to name such of their poems as they considered best represented their work. The poets took kindly to the idea, and the result is a book that may well be called unique. We had selections from the writings of poets, living and dead, made by eminent men and women of letters, but here is one made by the poets from their own works, and one which for this reason, cannot fail to pique the curiosity of the general reader, and excite the interest of the *litterati*. Mr. George Parsons Lathrop, has written an introduction to the book, which Cassell & Company will publish during the fall.

THE MARKETS.

OFFICE MANUFACTURERS' RECORD, 1
BALTIMORE, Oct. 21, 1885.

The activity in Wall street continues, and stocks are steadily moving up in price. With this exception there is nothing of particular interest in business generally. In some lines there is increased activity as compared with preceding weeks, while in others trade shows less briskness. The Railway Age, of Chicago, insists that the outlook for railroad building in 1886 promises more activity than for several years.

In manufactured iron there is no change in the market, the demand being very moderate. We quote as before, viz:

Ref. Bar Iron, 1 to 6 3/4 to 1.....	1.80	2 c
" " 1 to 4 1/2 x 1 1/4 to 1.....	1.80	2 c
" " 3/4 to 2, round and.....	1.80	2 c
square.....	1.80	2 c
Hoop Iron, 1 1/2 wide and upward.....	2 1/4	2 c
Band Iron, from 1 1/2 to 6 in. wide.....	2 1/4	2 c
Horseshoe Iron.....	2 1/4	3 c
Norway Nail Rods.....	5	5 1/2 c
Black Diamond Cast Steel.....	9	10 c
Machinery Steel.....	3 1/4	4 1/2 c
Spring Steel.....	3 1/4	4 c
Common Horse Nails.....	8	9 c
Railroad Spikes, 5 1/2 x 9-16.....	2	2 1/2 c
Boiler Tubes.....	5 1/2	off list

Pig iron continues dull with prices as last quoted, viz:

Baltimore Charcoal Wheel Iron (all Baltimore ore).....	28	00@29 00
Virginia C. B. Charcoal Wheel Iron.....	28	00@29 00
Anthracite, No. 1.....	19	00@20 00
" " 2.....	17	00@18 00
" " 3.....	15	00@16 00
" Mottled and White.....	13	00@14 00

HARDWARE.

The demand for hardware is hardly as active as it was a few weeks ago, and business is not quite so brisk as had been anticipated. The outlook for a good trade is, however, promising, and in a short time orders will probably be more numerous. At present the farmers of the South, and all the hands that can be engaged, are too busy picking cotton to do much buying in the towns.

Nails are as before, scarce, and selling at \$2.40@2.50, according to quantity.

Philadelphia Iron Market.

PHILADELPHIA, October 20th, 1885.

The past six days has brought in considerable business, and some of it at better prices than was thought probable a week ago. There were signs of a slight reaction a few days ago, but since then they have disappeared, and buyers of good brands of iron particularly are taking everything they can get for early delivery. It can be safely said that special and standard irons are scarce. A few heavy buyers would give the market a further upward tendency. There is plenty of iron of ordinary make, and the sellers of it do not seem anxious to scare buyers away by advancing prices. For instance, there is a fair quality of forge selling at \$15, and not a bad number at \$17.50, but for the past two or three weeks the run has been on the finer qualities, and this has strengthened them. A good many muck bars have sold at \$27.50. The reports from the mills throughout the State show that a steady though not heavy demand is in progress, and that prices are not higher or lower. The average figure for medium iron is \$1.60. The mills that are turning out the very best brands of refined find no difficulty in getting \$1.75 to \$1.80. There is quite an active inquiry this week for plates and sheets. Large sales of skelp iron have been made at \$1.75 to \$1.80. The bridge makers are not crowded at present, but have orders in hand which will keep them busy for the next 90 days. Nails are, of course, scarce, and everything is sold away ahead. The Western people seem intent on fighting out their fight, and if so, it is probable a further advance will be made among retailers. The factories are pretty well loaded down with orders at \$2.25 to \$2.30. The rail mills are loading up, with orders at \$30 to \$31, and there seems to be no likelihood of any weakening; in fact,

makers are very confident that as the season advances they will be able to command higher prices, though they have loaded up with all the rails they can furnish for three or four months. They will likely conclude to increase the supply for 1886 by one-quarter million tons. It is this possibility that has led a good many buyers to defer placing orders; but there is not much likelihood of their profiting by a rescinding of the resolution, which will allow an increased production. Old rails are in very active demand, and prices named by buyers are \$17.50 to \$18, which is paid for spot lots.

Cincinnati Iron Market Report

Specially reported by ROGERS, BROWN & Co., Pig Iron Commission.

CINCINNATI, October 19, 1885.

The market tributary to Cincinnati is firm at the new prices but has not shown the same activity it did last week. The volume of business, however, has been fair and would have been large, had furnace owners been willing to contract deliveries running into next year at present prices. The further advance demanded for 1886 deliveries has the effect of confirming most purchasers to placing orders which terminate before January 1st. The firmness of prices is daily observed by the uniform refusal of sellers to accept offers shading the full market. We quote on the basis of cash:

HOT-BLAST FOUNDRY.

Ohio and Southern Strong Coke No. 1.	\$16.00@17.00
" " " " No. 2.	15.00@16.00
" " " " No. 3.	14.50@15.00
Ohio Soft Stonecoal, No. 1.	16.50@17.00
" " " " No. 2.	16.00@—
Mahoning and Shenango Valley Coke, No. 1.	16.75@17.75

CHARCOAL IRON.

Hanging Rock, No. 1.	\$19.00@20.00
" " " " No. 2.	18.00@19.00
Tennessee and Alabama, No. 1.	17.50@18.50
" " " " No. 2.	16.50@17.50

FORGE.

Strong Neutral Coke.	\$14.00@—
Mottled " "	13.00@—
Cold Short.	13.25@—

CAR WHEEL AND MALLEABLE.

Southern Car-Wheel Iron.	22.00@24.00
Hanging Rock C. B.	25.00@27.00
" " W. B.	20.00@23.00
Lake Superior Malleable.	22.00@25.00

Specially reported by E. L. HARPER & Co.

CINCINNATI, October 19, 1885.

The business of the past week has been in the aggregate large, and, while prices rule about the same, the scarcity of some grades, in certain brands, has warranted the furnaces in asking an advanced price, which has been gotten without difficulty. The Southern furnaces are well sold up, and nearly all of them in blast. The Virginia furnaces are well supplied with orders. The Ohio and Pennsylvania furnaces are in comfortable conditions, as to orders, consequently the producers of pig iron generally feel easy and somewhat independent. The mills and foundries are fairly active, and a good feeling pervades the trade generally. We quote as prices current cash f. o. b. cars or wharf here:

FOUNDRY.	Cash.
Hanging Rock Charcoal, No. 1.	\$18.50@19.50
" " " " No. 2.	17.50@18.50
Southern Charcoal	17.00@17.50
" " " " " "	16.00@16.50
Strong Neutral Coke,	15.50@16.00
" " " " " "	14.50@15.00
American Scotch,	15.50@16.00

GREY FORGE.

Neutral Coke.	13.00@13.50
Cold Short.	13.00@13.50

CAR WHEEL AND MALLEABLE.

Hanging Rock, strictly cold blast.	25.00@25.50
" " " " " "	21.00@21.50
" " " " " "	22.50@23.50
" " " " " "	19.00@20.00
Lake Superior Charcoal, all grades.	19.00@20.00

Louisville Iron Market.

Specially reported by W. B. BELKNAP & Co., Nails, Wire, Iron, Hardware, Carriage and Wagon Goods.

LOUISVILLE, KY., October 19, 1885.

The past week has shown a slight improvement in the volume of business. The wet stormy weather of three weeks, depressing enough, has given way to more cheerful autumn skies and temperature, and the damage to crops discovered not to be so great as was first feared and reported.

Bar Iron.—A very slight improvement, noticed last week, is well sustained. Some large orders have been placed at the new prices, still it is mere fractional advance on the former figures, and is only encouraging as an advance.

Hoops and Bands.—The advance on hoops still holds good, although the manufacture of cotton ties, which has given employment to some of the largest mills, is now naturally declining as the season progresses.

Sheet.—The heavy gauges of sheet are in good demand, and there is no cutting on the part of the manufacturers or effort to break prices by those outside.

Steel.—Manufacturers of agricultural steel claim to be full, and the truth of this is shown in the difficulty of securing prompt execution of assorted orders for shapes.

Nails.—The extreme scarcity of nails continues to interest the trade. Full prices are easily obtained, much more so than the supply itself.

The nail meeting at Cincinnati last Wednesday was well attended, and disclosed the fact that more machines were being put in operation every day, amounting now to almost 500.

General trade, while affording possibly some grounds for complaint on the part of those who expected too much, is, on the whole, good.

Specially reported by GEO. H. HULL & Co., Commission Merchants for the sale of Hot and Cold Blast Pig Iron.

LOUISVILLE, KY., Oct. 19th, 1885.

The market for pig iron is very active, and large sales have been booked for present and future delivery. Double the amount might have been sold, but furnaces are so largely sold ahead, many of them are declining sales of all regular grades. Now that a demand has sprung up, it looks as though the supply would be short of the demand. We revise our quotations as below which are for cash in round lots, with a tendency to outside figures:

Southern Coke, No. 1 Foundry.	\$16.00@17.00
" " " " " "	15.00@16.00
" " " " " "	14.00@14.50
Hanging Rock Coke, No. 1 Foundry.	16.00@16.50
" " " " " "	19.00@20.00
Southern Charcoal, No. 1 Foundry.	17.00@18.00
Silver Gray, different grades.	14.50@15.50
Southern Coke, No. 1 Mill, Neutral.	13.50@14.00
" " " " " "	13.00@13.50
" " " " " "	13.00@13.25
Southern Charcoal, No. 1 Mill.	15.00@17.00
White and Mottled, different grades.	11.50@12.50
Southern Car Wheel, standard brands.	23.00@24.00
" " " " " "	18.00@20.00
Hanging Rock Cold Blast.	23.00@24.00
" " " " " "	18.00@20.00

Chattanooga Iron Market.

Specially reported by LOWE & TUCKER, Brokers and Commission.

CHATTANOOGA, TENN., Oct. 19, 1885.

We have little change to note in the general tone of the market. The gathering of the cotton crop is progressing rapidly, under the benign influence of fine weather. We hear of new enterprises in the manufacturing line being located in various parts of the South, and they have almost ceased to be matters of note. Pig iron continues to hold its own in price, and it is exceptional that large sales are made, furnaces preferring to sell only sufficient to keep their orders ahead. We make no change in quotations:

No. 1 Foundry.	\$14.50@15.50
No. 2 Foundry.	13.50@14.50
American Scotch.	13.50@14.00
Gray Forge.	12.00@13.00
Car-Wheel Iron.	22.00@24.00
Ores, Red and Brown.	1.50@2.25
Furnace Coke.	2.00@2.50
Nails, car-load lots, 30 days.	—@2.35
Bar Iron, per 100 lb.	—@1.05
Old Rails.	—@1.00
Old Wheels.	—@1.30
Wrought Scrap.	—@.35
" " " " " "	—@.40
Cotton Tie Clippings.	—@—
Cast Scrap.	—@—
Railroad Splices.	—@1.65
Railroad spikes.	—@1.80
Light Steel Rails, long ton.	40.00@47.00
Barb wire—Cambria link.	5.00@5.50
Barbed wire—four point galvanized.	—@—
Barb ware.	—@—

St. Louis Iron Market.

Specially reported by W. H. SHIELDS, Pig Iron and Iron Ore, No. 305 Olive Street.

ST. LOUIS, Oct. 19, 1885.

The situation here has not changed, and quotations show little or no change, viz:

HOT-BLAST CHARCOAL.

Missouri.	\$15.00@16.00
Southern.	16.00@17.50
Ohio.	—@—

COKE AND COAL.

Missouri.	14.00@15.00
Southern.	15.00@17.00
American Scotch.	16.00@19.00

MILL IRONS.

Missouri.	14.50@15.00
Southern.	14.00@14.50

CAR-WHEEL AND MALLEABLE IRON.

Southern.	20.00@24.00
Lake Superior.	20.00@23.00

MISCELLANEOUS.

Old Wheels.	14.00@14.25
Old Rails.	17.25@17.50
Old Rails, steel.	15.00@15.25
Wrought Scrap.	55@65
Cast Scrap.	45@55
Connellsville Coke, East St. Louis.	5.30@—
Iron, par.	—@—

List of Patents.

The following Patents were granted to citizens of the Southern States, bearing date Oct. 13th, 1885. Reported expressly for this paper by Louis Bagger & Co., Mechanical Experts and Solicitors of Patents, Washington, D. C.

Allfree, J. B., Cumberland, Md. Belt-tightener.	328,373
Brown, F. H., Fort Worth, Texas. Rocking-chair.	328,000
Church, D. M., Baltimore, Md. Polishing or emery cord.	328,004
Cox, William, Tallahas, Ga. Cultivator.	328,193
Cunco, John, Vicksburg, Miss. Car-coupling.	328,388
Davis, J. F., Marshall, Texas. Table.	328,115
Davis, J. H., Covington, Ky. Roller-skate.	328,198
Dietz, C. F., New Orleans, La. Time-piece dial.	328,112
Flint, F. W., Atlanta, Ga. Electric telethermoscope.	328,205
Follett, C. J., Galveston, Texas. Beer-cooler.	328,396
Fowler, J. H., Orangeburg court-house, S. C. Cotton-cultivator.	328,397
Gardner, R. J., Lovelady, Texas. Planter.	328,306
Gladish, W. J., Chattanooga, Tenn. Nail-plate feeding machine.	328,399
Haselton, D. B., Charleston, S. C. Cotton-harvester.	328,116
Huber, L. C., Huber, Ky. Mail-bag.	328,034
Hull, J. S., Baltimore, Md. Soldering-iron heater.	328,406
Kelly, J. T., Sr., Jonesborough, N. C. Turbine water-wheel.	328,314
Lewis, Anderson, and E. Huff, Kernersville, N. C. Buggy.	328,321
Mangan, Thomas, and J. T. Wilson, New Orleans, La. Fare-box.	328,326
Melancon, E. D., and L. L. Savoy, Paincourtville, La. Stubble-digger.	328,330
Mingua, W. J., Augusta, Ky. Lamp shade and ornament.	328,047
Mosley, J. S., and T. J. Mancill, Atlanta, Miss. Machine for filing gin-saws.	328,423
Nowlin, W. A., Mexia, Texas. Paint-brush.	328,426
Porter, G. W. D., and L. L., Fayetteville, Tenn. Plow.	328,429
Skaggs, N. J., Montgomery, Ala. Sash-balance.	328,347
Smith, P. S., Knoxville, Ga. Fertilizer and seed distributor.	328,349
Venable, W. T., Christiansburg Precinct, Ky. Washing-machine.	328,262
Wilkinson, B. M., Baltimore, Md. Liquid-gas apparatus.	328,370
Williams, R. E., and W. A. Trammell, Dallas, Texas. Combined flour and meal bin and flour-sifter.	328,444
Womack, J. D., Cameron, Texas. Vermin-poison.	328,445

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Nos. 21, 22, 23 and 24. 22 23 24 25 26 27 28 29 30

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Nos. 27 and 28. 23 24 25 26 27 28 29 30

Add 9 cts. $\frac{1}{2}$ lb. for sheets cut to particular widths and lengths.

Add $\frac{1}{4}$ c. $\frac{1}{2}$ lb. additional on each number thinner than Nos. 28 to 38 inclusive.

Brass thinner than No. 38 is Platers' Brass.

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Low Brass four cts. $\frac{1}{2}$ lb. more than common High Brass.

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Over $\frac{1}{4}$ in. to $\frac{1}{2}$ in., inclusive, Nos. 21 to 28, inclusive. 36 cts.

Over $\frac{1}{8}$ in. and narrower, Nos. 21 to 28, inclusive, not less than. 36 cts.

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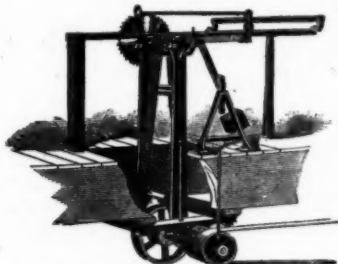
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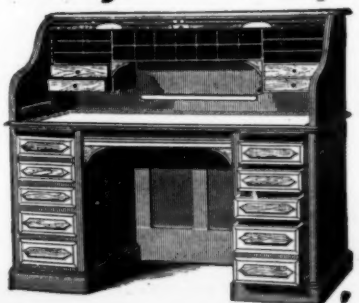
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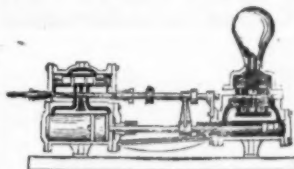
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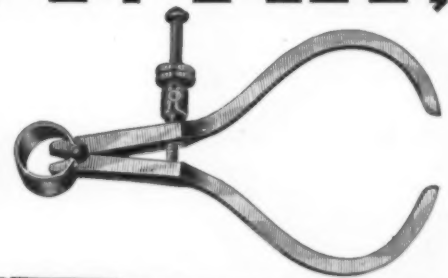
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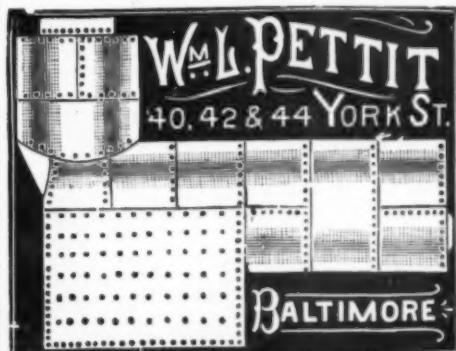
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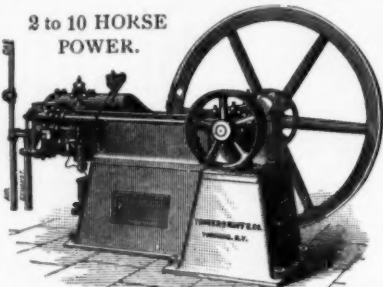
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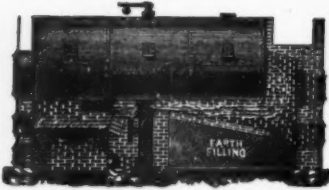


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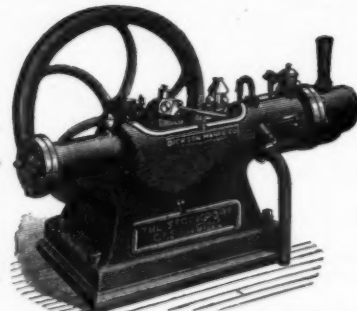
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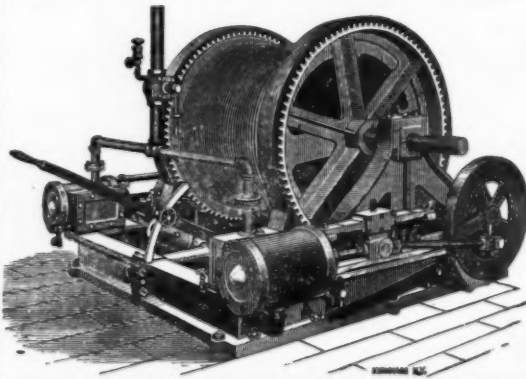
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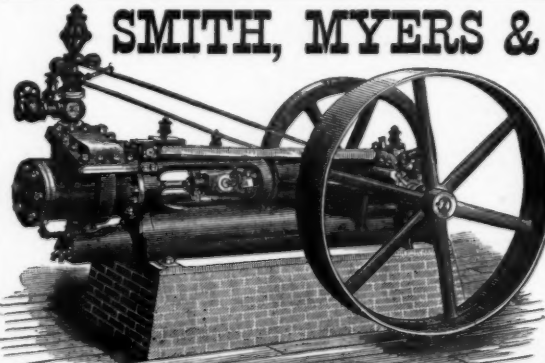
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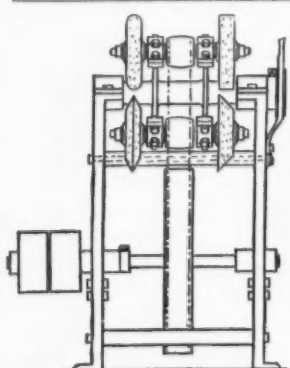


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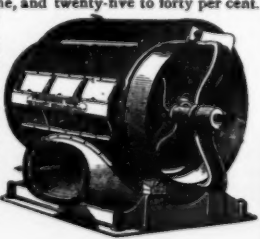
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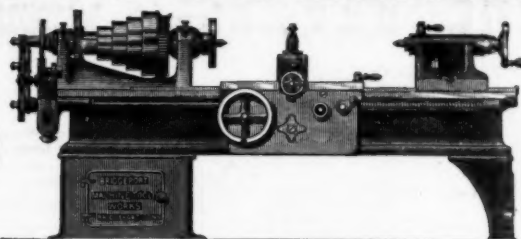
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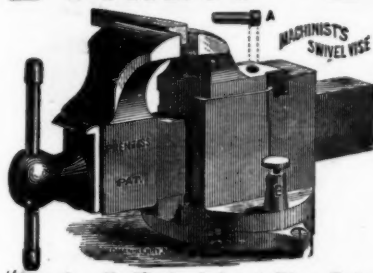


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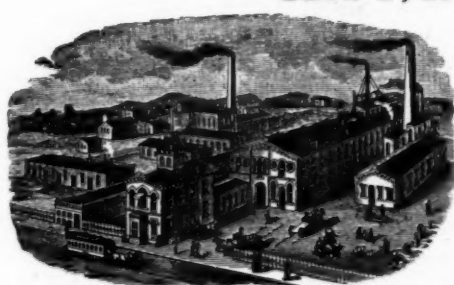
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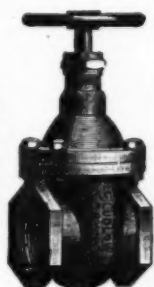
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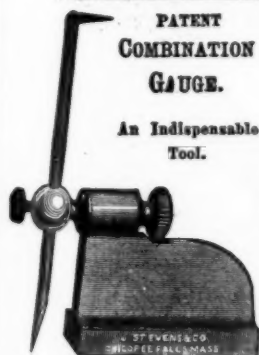
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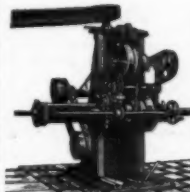
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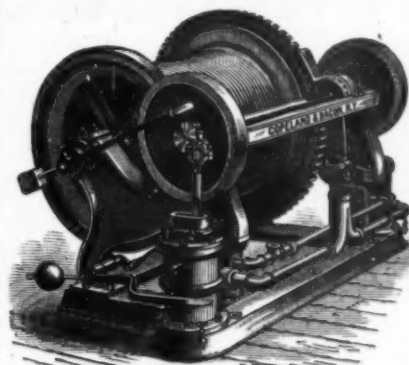
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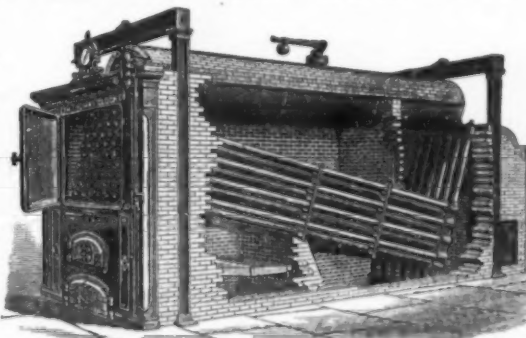
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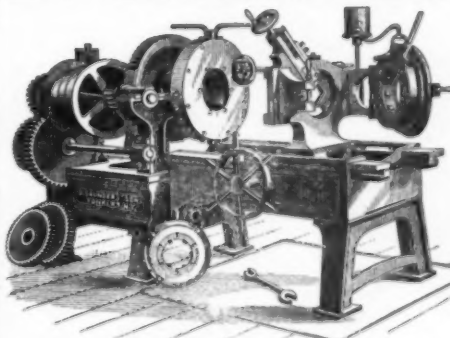
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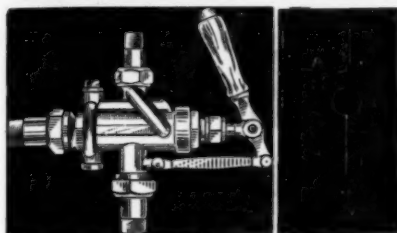
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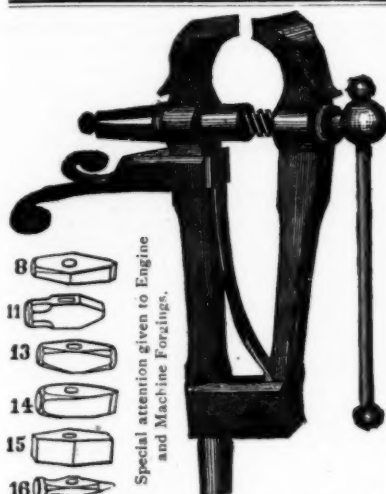
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For the purpose of making the MANUFACTURERS' RECORD a still more valuable medium of communication between its readers North and South, we will publish, FREE OF CHARGE, short advertisements, not exceeding 40 words, from those in the South who have good business openings that they wish to bring to public notice, capital wanted for industrial enterprises, &c., &c.; while readers in other sections who desire to engage in manufactures at the South are also invited to use these columns, without cost, either in seeking information regarding the advantages and special claims of different localities, or for asking about good openings for men and money. This department is also free for Southern manufacturers who wish to advertise for mill managers, superintendents, engineers, &c.

In corresponding with any of these advertisers please mention the Baltimore Manufacturers' Record.

THE JOB DEPARTMENT of "The New South," Columbus, Miss., is for sale. One or two capable, energetic young men of experience with a hundred dollars capital, would find this an excellent opportunity to build up a good business. The materials are all new. Columbus is a city of over 5,000 inhabitants; is rapidly growing, and will be a great railroad center within a few years. Address as above.

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WANTED.—An active young man of experience in the manufacture of smoking tobacco. Must have \$4,000 to \$5,000, to join a gentleman of equal capital, to establish a manufactory South. Address Jones, care of Walton & Ewin, Nashville, Tenn.

WANTED.—To a competent iron fence man having \$2,000 or \$3,000 to invest. We offer a rare chance. Address, Box 102, Chattanooga, Tenn.

BEING interested in quarrying fine Tennessee marble, I would like to correspond with some one having experience in sawing marble and with capital to invest, with a view to erecting a mill in connection with quarry. Address P. O. Box 72, Rogersville, Tenn.

ATLANTA.—Wanted party with \$3,000 to \$5,000 to join practical man in starting soap factory in this growing city; one who can sell goods and manage outside business. This is a fine opening. Address L. E. Boswell, Atlanta, Ga.

PARTNER WANTED to take an interest in a profitable manufacturing business in Middle Georgia. To a man with \$5,000 or more seeking investment and employment or investment alone, this is a fine opportunity. Address F. S. C., Macon, Ga.

PARTNER WANTED with \$5,000 to start a stove factory by parties representing over \$20,000 in real estate and having ample experience. A large profit can be made. Will guarantee the investment and \$5 per annum. Address Enterprise, Lock Box 27, Warrenton, Va.

WANTED.—A position in a sash and blind factory as foreman or master-workman; 12 years' experience; well up in all kinds of wood-working; can give best recommendations. W. T. L., care MANUFACTURERS' RECORD.

TO SOAP MANUFACTURERS.—The location of a soap manufactory is desired in a live and growing Southern city of 10,000 inhabitants, situated at the junction of two trunk lines of railroad, in the best section of the South, entirely free from malaria or epidemics. To a thoroughly practical man competent to manage the business and able to furnish half the capital required for a respectable establishment, inducements will be offered. Address Oil Mill, care MANUFACTURERS' RECORD, Baltimore, Md.

WANTED.—A practical bucket maker. To the right sort of a man who has had experience in working cedar and white pine, and can run a shop successfully, a good inducement will be offered. Barker Manufacturing Company, Knoxville, Tenn.

WANTED.—By an energetic, live young man a partner with \$10,000 to \$20,000, to engage in the tobacco business in Piedmont, North Carolina. Best of reference given, showing him qualified to handle business. Address Tobacco, care MANUFACTURERS' RECORD.

WANTED by a qualified mining engineer a position as superintendent or manager of a mine in the South. Accurate mine surveys made and ventilation attended to. Address Geo. D. Stonestreet, Mining Engineer, Box 307, Birmingham, Ala.

A FIRST-CLASS MOULDER with moderate capital, also a pattern-maker, can secure an interest in a paying business in the South. Business now in fine condition, but without sufficient facilities to do all the work that can be secured. Additional capital needed. Address H. & Co., care MANUFACTURERS' RECORD.

A MACHINIST as partner wanted in a foundry and machine shop that is fitted up in first-class manner and is overrun with work. The location is one of the best in the South. The advertiser has not had sufficient experience to conduct the business property, and wants a first-class practical machinist to go in with him. Address C. O. W., care MANUFACTURERS' RECORD.

A YOUNG MAN, engaged in designing and superintending the construction of machinery, wishes to hear of an opportunity in the South to invest \$2,000 to \$3,000 and services. David Eldredge, care of Ed. Wolf, 579 Eighth Avenue, New York City.

FOR SALE—I offer for sale an interest in a well-established Foundry and Machine Business. A good location; a growing business; valuable patents and patterns. Control of the Southern States on a valuable specialty. For particulars address W. J. care MANUFACTURERS' RECORD.

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FOR SALE.—Three grand tracts of iron lands in Tennessee; great iron property in Georgia; good cotton mill in Tennessee; ranches, farms, winter homes and orange groves in the South. W. R. Stuart, 194 Common street, New Orleans.

I WISH to meet with a capitalist with a view to manufacture special machinery, which will be secured by patents, for the manufacture of silk, cotton and leather goods, or to build machinery and manufacture the goods. Special information to correspondents. Address: P. care MANUFACTURERS' RECORD.

Get the Best at First.

The Holyoke Machine Company, of Worcester, Massachusetts, advertise in this issue their well-known Hercules Water Wheel. This wheel has many points of merit that strongly commend it to the attention of those who use water power. The most thorough tests have demonstrated its many good qualities. In Holyoke it is the standard water wheel, the aggregate horse power of the Hercules wheels in operation there being greater than that of all other wheels combined. These wheels are very popular in the South as well as in the North, having been in use for many years in a large number of Southern mills. There are four of the Hercules wheels now in operation in the big cotton mills of the Eagle & Phenix Manufacturing Co., Columbus, Ga., and Mr. John Hill, of that company, in writing, Feb. 25, 1885, to the Holyoke Machine Co., said: "Within the past four years I have ordered four 'Hercules' wheels, all of which have given the purchasers entire satisfaction. Three of the wheels are on regular duty in the Eagle & Phenix Mills. The first wheel ordered did so well that a 'Hercules' wheel has been added each time a new wheel was wanted. In the Eagle & Phenix Mills I supervise twenty water wheels of six different styles. The 'Hercules' is by far the most durable and best made wheel in use here, and, in fact, I know of no wheel its equal mechanically. It is all that can be desired in economy of water. In fact, it is a strictly first-class wheel in every way, and the wheel to buy, use and depend upon."

That is a pretty strong letter, but it is only a sample of letters received by the manufacturers of this wheel. Among the recent shipment of wheels have been two—one a 54-inch and one of 60-inch—to a Georgia cotton mill. Two Hercules wheels are being put in at Natick Cotton Mill, and one at the Arctic Mill of B. B. & R. Knight near Providence. This will make eleven wheels furnished to this well-known firm, one of the most prominent in the manufacturing line in New England. Hercules wheels are sold in England, Ireland and Scotland, and on the Continent, a cable order having been received only a few days ago for one to go to France. The manufacturers say: "The Hercules gives the most power for its size and the highest average percentage from full to one-half gate of any wheel ever made." Their advice to all users of water wheels is to "get the best at first." If you are interested in water wheels, if you want a new wheel or a larger wheel, or a better wheel than you are using, write to the Holyoke Machine Co., Worcester, Mass., for catalogue No. 3.

Managers of mills, factories, furnaces, mines, etc., and parties starting manufacturing enterprises, and needing machinery or supplies of any kind, will find it profitable to consult the advertising columns of the MANUFACTURERS' RECORD. Its pages contain names of the best houses in the country among manufacturers of and dealers in machinery and mill supplies.

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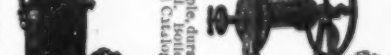
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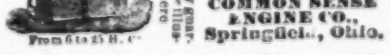


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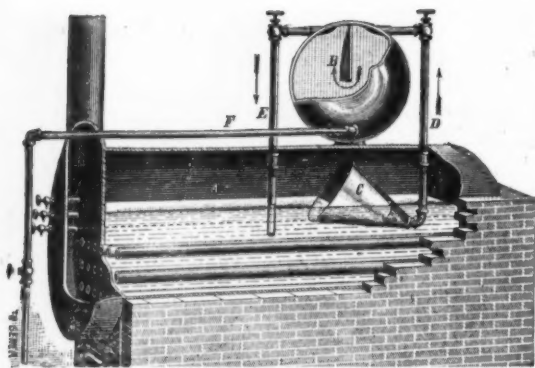
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Removes from Steam Boilers, Lime, Oil, Magnesia, and all other impurities of Boiler Water, and prevents Scaling, Foaming and Burning; but the object of this advertisement is to inform you that some

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In the South and West are offering Boiler Cleaners for sale as shown in cut on right-hand side below which is an old style of my cleaner. The cut on left side shows my improved style.

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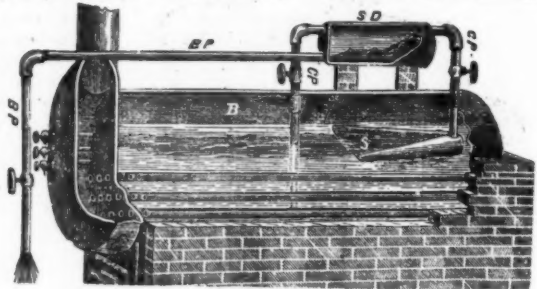


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If you will send me your name I will send you an 88 page book, free of charge, giving useful information to Steam Users and Engineers. 65,000 already sent out and more to follow. The title of book is "HOW TO KEEP BOILERS CLEAN."

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S. D. Settling Drum. C. P. Circulating Pipe. B. P. Blow-off Pipe. S. Skimmer.



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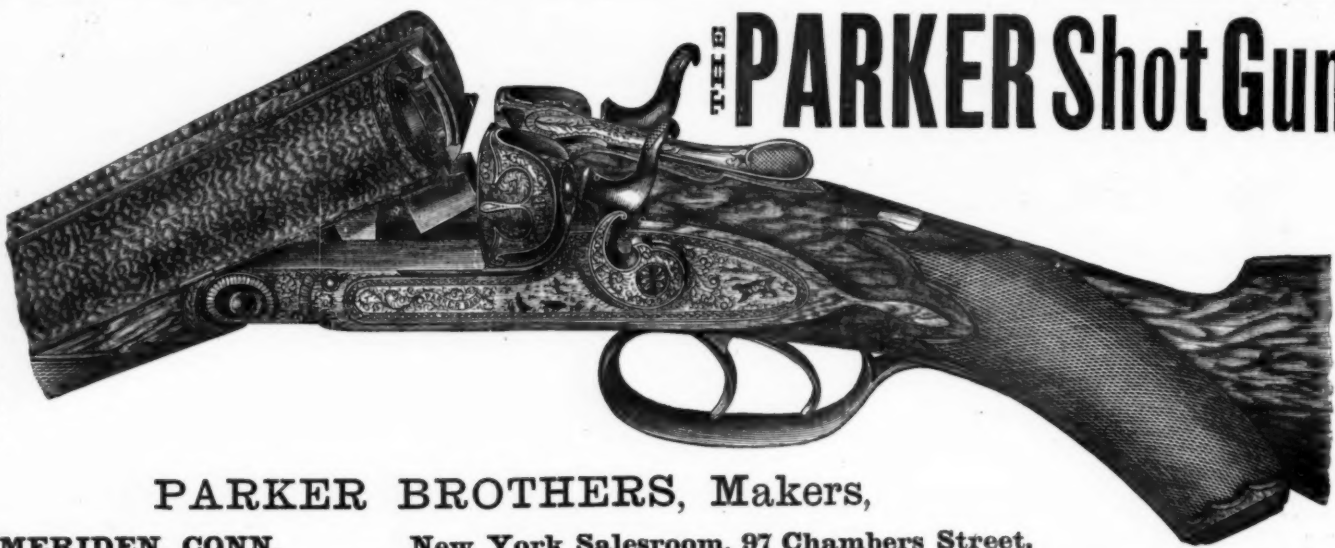
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86 John Street,

NEW YORK.

SCALE

Report of the International Gun Trial, held at Bergen Point, N. J., April 3, 1884. Extract from *Turf, Field and Farm* reporting the same: "The Parker Gun, our prominent home manufacture, won the admiration of all by its fine shooting qualities. It registered in both the 10 and 12-bore classes; the greatest number of pellets in the 30-inch circle, and therefore must be awarded the palm for pattern."



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Finished Screw Plates and Dies.
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Billings' Patent Double Action Ratchet Drills.
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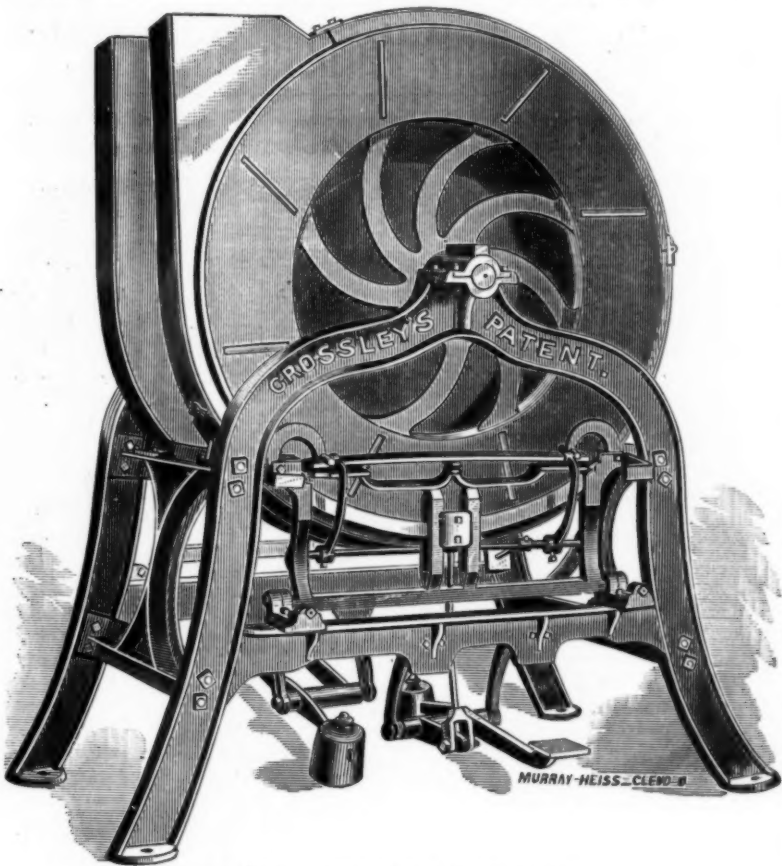
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VALLEY MACHINE CO. EASTHAMPTON, MASS.

TRADE NOTES.**Crossley's Patent Double Stave Jointer.**

The accompanying cut represents the well-known "Crossley Stave Jointer," now being used in all the large cooper shops in the United States and Canada. These machines possess many advantages over the old, and are a great saving in both time, labor and expense. Beside the saving in time and labor, it makes a joint that will keep out water.

The clamps which hold the staves are adjustable. The wheels are cased with iron castings, having suitable openings to attach pipes for conveying shavings to any convenient distance. These jointers need no fan to blow away the shavings, as their construction is such that the wheels will blow the shavings 150 feet, if necessary. Parties who buy a single jointer can have another wheel and fixtures put on the same frame at any time, by paying the difference between the cost of single and double jointer.

These machines are manufactured by



CROSSLEY'S PATENT DOUBLE STAVE JOINTER.

John S. Oram, 165 River street, Cleveland, Ohio, and he has already placed considerable staves and heading machinery in the Southern States.

In addition to this jointer and general stave machinery, he manufactures pulleys, hangers, shafting, pumps, saw-arbors, etc. Manufacturers in this line would do well to examine his catalogue and price-list for 1885, which will be mailed free upon application.

Artistic Wood Engraving.

Attention is directed to the name of "Cleveland Engraving Company" whose advertisement appears in this issue. Manufacturers and others wanting well-executed and artistic engravings, wood cuts, electro-types, stereotypes, &c., whether mechanical or otherwise, can get just what they want, very promptly, and at a most reasonable figure by sending to this well-known concern. C. W. Stambaugh, proprietor, 208 Superior street, Cleveland, Ohio. Mechanical engravings and cuts a specialty. Estimates furnished upon application.

Edward H. Dickerson. Edward H. Dickerson, Jr.
LAW OFFICES OF
DICKERSON & DICKERSON,
TEMPLE COURT,
NEW YORK, Oct. 16th, 1885.

Safety Steam Generator Co.,
68 Warren Street, New York.

GENTLEMEN—We have carefully examined the claim made by the Babcock & Wilcox Company that your boilers are infringements of valid patents owned by them, and as such are liable to be enjoined by the Circuit Court of the United States.

We are of opinion that there is no just foundation for this claim, and that there is no reason to apprehend any such action by the courts. Yours truly,

† (Signed) DICKERSON & DICKERSON.

D. SAUNDERS & SONS, Yonkers, N. Y., have issued an illustrated catalogue of their pipe threading machines, tapping machines for pipe fittings, hand stocks and dies for pipe, taps, reamers, tongs, hand pipe cutters, pipe vises, etc. The extensive line of goods manufactured by this well-known firm are fully illustrated and described in their catalogue, the prices given, etc. The



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[PATENTED JULY 21, 1885.]

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The chief ingredients causing sedimentary deposits and incrustation are organic matter, carbonate of lime, sulphate of lime, carbonate of magnesia, sulphate of iron, and in salt water common salt.

The **WARNER PURIFIER AND HEATER** is the only machine which precipitates all impurities held in suspension, heats the water to the boiling point under full boiler pressure, separates and precipitates the mineral salts held in solution *before the water reaches the boiler*, and then injects the water thus purified into the boiler *boiling hot*. It is an automatic machine, entirely outside of the boiler, requiring absolutely no attention from the engineer except to blow off the accumulation of deposit from the bottom of the machine which acts as a mud-drum. All this is accomplished without the use of chemicals, by a purely mechanical process, regulated by the principles of natural philosophy.

No more "shutting down" of work to clean boilers—the machine does it all every day without interfering with the work, and by removing scale and preventing its formation, and heating the water to the boiling point *saves a large percentage of fuel*.

The **WARNER HEATER AND PURIFIER COMPANY** is now ready to furnish these machines on demand at very reasonable figures.

WASHINGTON, D. C., May 23, 1885.

This is to certify that I have made a careful examination of "Warner's Combined Purifier and Heater of Feed Water" in practical operation at the "Harris House" and "Post Building," in this city, and do not hesitate to pronounce it the *best* machine for the purpose ever invented. By its use the water goes into the boiler free from all impurities and heated to the boiling point under full boiler pressure, and as the result of the injection of pure water, the boiler is freed from scale and *kept clean*, while a large saving is made in fuel by the removal of the scale and heating the water to the boiling point *before it enters the boiler*. By the use of this machine the necessity of "shutting down" in order to blow out and clean the boiler is wholly obviated, as the impurities are all collected in the bottom of the machine, which can be blown out as many times a day as the engineer thinks proper without interfering with the workings of the boiler. I confidently commend this machine to all persons who own or use steam boilers, and am satisfied that its use will prolong the life of the boiler and make a handsome saving in the use of fuel.

Very respectfully,

(Signed) JOHN H. WILKERSON,

Inspector of Steam Boilers for District of Columbia, 220 7th Street, S. E.
"HARRIS HOUSE," COR. PENNSYLVANIA AVENUE AND E STREET, N. W.

WASHINGTON, D. C., June 23, 1885.

This is to certify that one of "Warner's Purifiers and Heaters of Feed Water" has been in use on one of the boilers of the Harris House, in this city, for three months, and has proved a perfect success. The boiler upon which the machine was placed was at the time covered with a heavy scale composed of animal and vegetable matter, lime, &c., which, by the use of this machine, has been entirely removed, the boiler being now as clean as when it came from the boiler-maker. This has been entirely accomplished, without the use of chemicals, by the injection of pure water through the "Purifier and Heater." This machine injects the water into the boiler heated to the boiling point under full boiler pressure, and by this means, together with the removal of the scale, results in a large saving of fuel. It is also invaluable in the purification of the water for laundry purposes. The machine is self-acting, and prevents the necessity of "shutting down" in order to blow out the boiler, as the impurities are all concentrated in the bottom of the machine, and can be blown out through the machine as often during the day as the engineer may deem advisable without interfering with the working of the boiler. I am convinced that its use will prolong the life of all boilers upon which it may be placed, save a large percentage of fuel, decrease the danger of explosion, purify the water for all purposes, and give general satisfaction. I confidently commend it to all hotels using steam and to owners of steam boilers generally as a much needed improvement that will do the work claimed for it thoroughly.

(Signed) JOHN H. HARRIS, Proprietor of Harris House, Washington, D. C.

WASHINGTON "POST" BUILDING, WASHINGTON, D. C., June 23, 1885.

This is to certify that one of "Warner's Purifiers and Heaters of Feed Water" was placed upon the boiler of the Post Building about 60 days ago as a test. At that time the boiler was covered with a heavy scale of animal and vegetable matter, lime, &c., which it was impossible to prevent. By the use of this Purifier and Heater, which injects the water into the boiler free from all impurities and heated to the boiling point, the scale has been removed and the consumption of coal reduced. The machine works itself and is invaluable as a purifier of water to all branches of business requiring pure water, such as hotels, laundries, &c., and a much needed adjunct to all steam boilers, prolonging their life, decreasing the danger of explosion and effecting a large reduction in the consumption of fuel. I confidently commend Warner's Purifier and Heater to all owners of steam boilers, being confident that their interests will be subserved by its use.

(Signed) J. FRANK MCGUIRE, Superintendent and Engineer Post Building.

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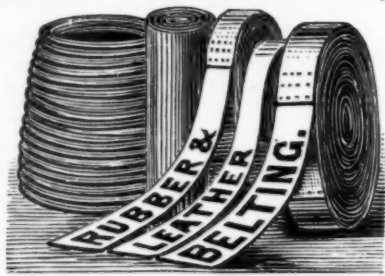
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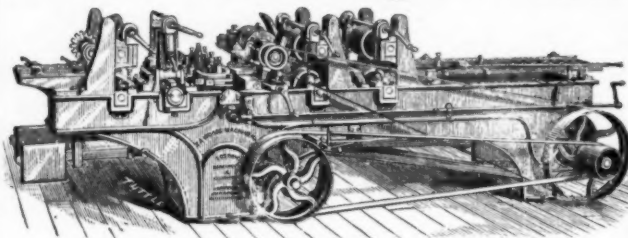
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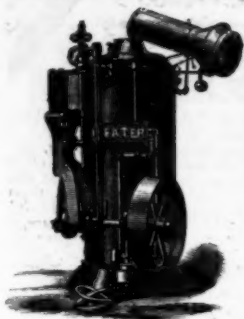
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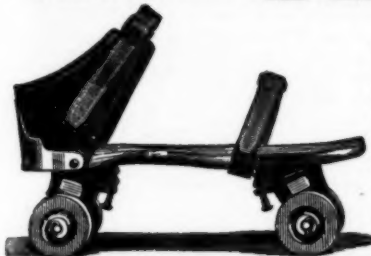
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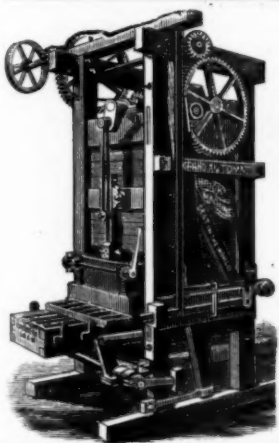


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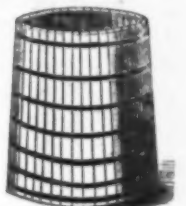
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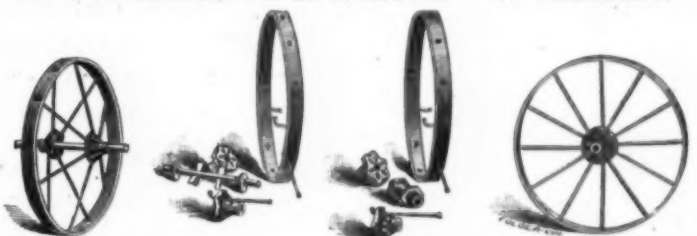
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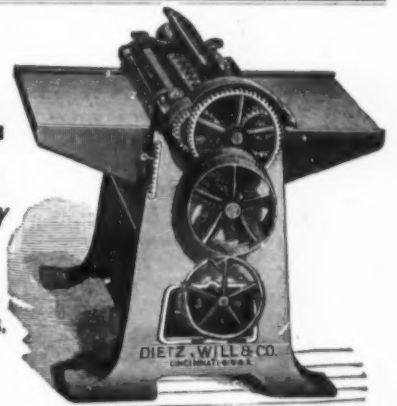
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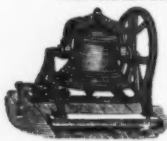
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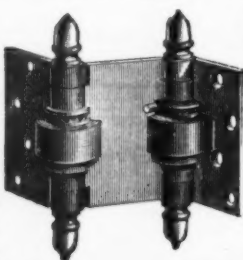
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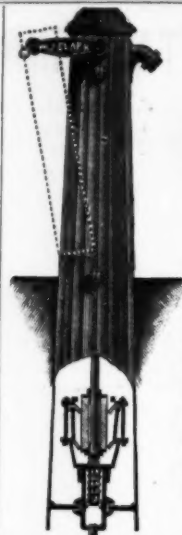
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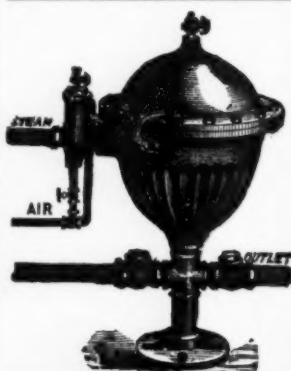
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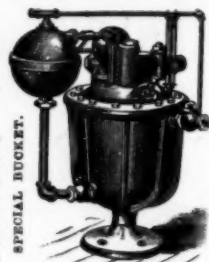
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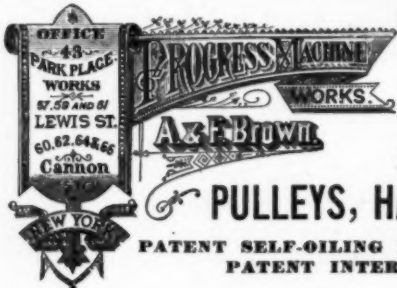
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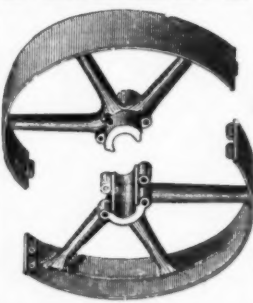
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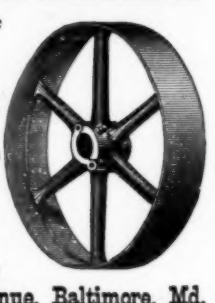


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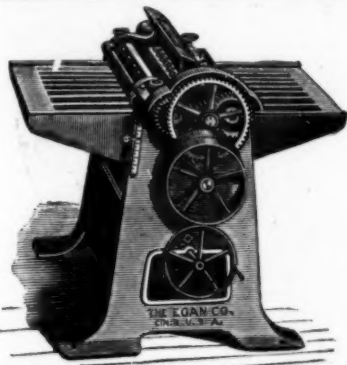
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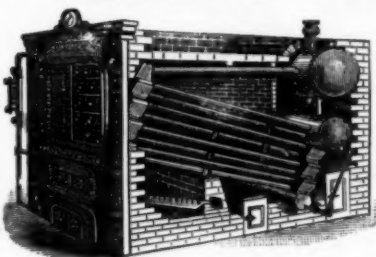
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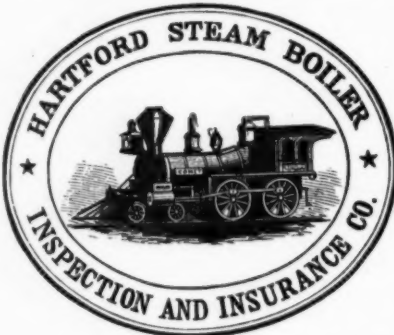
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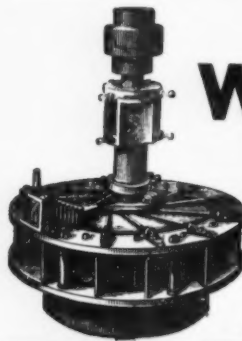
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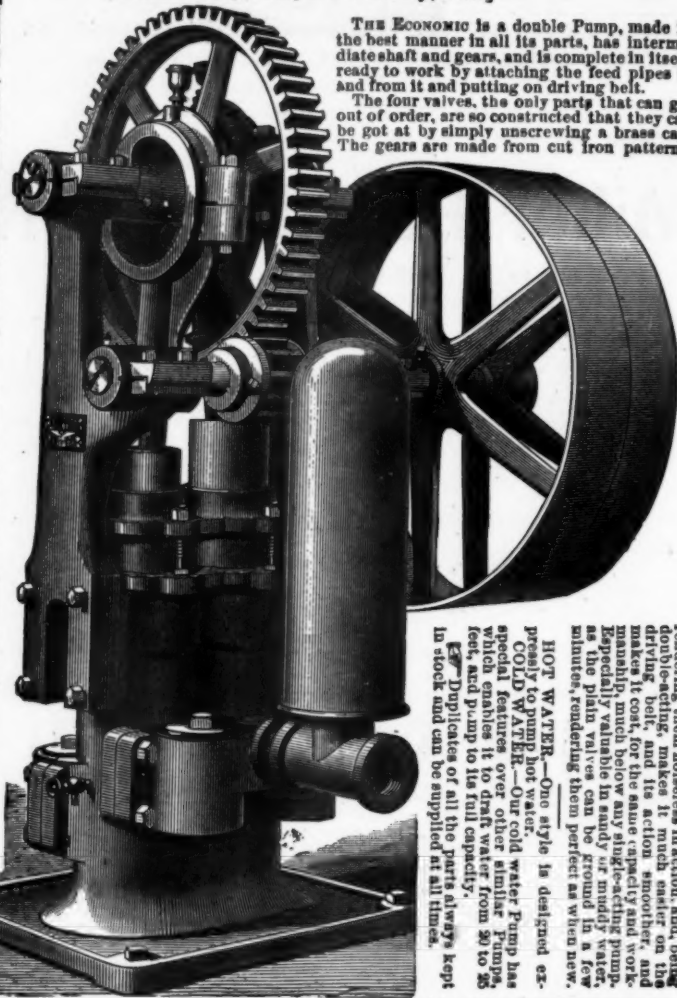
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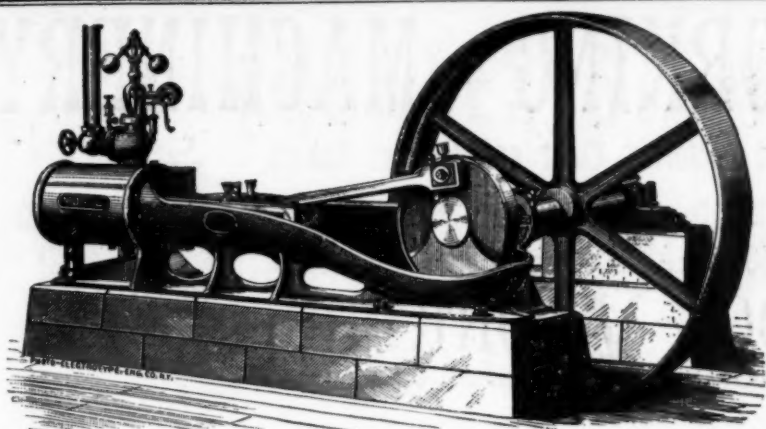
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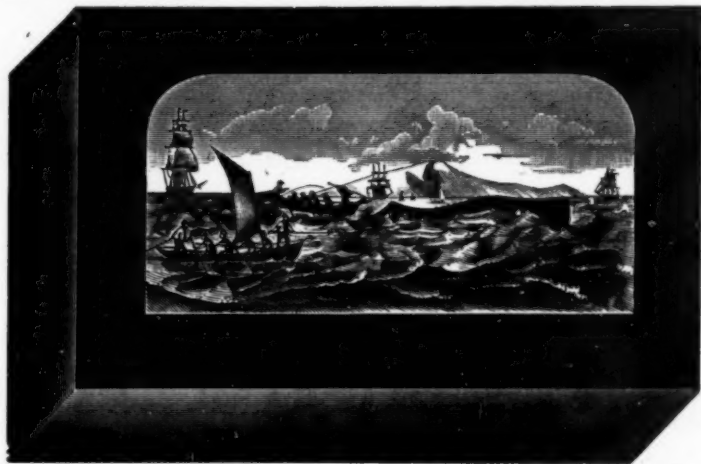
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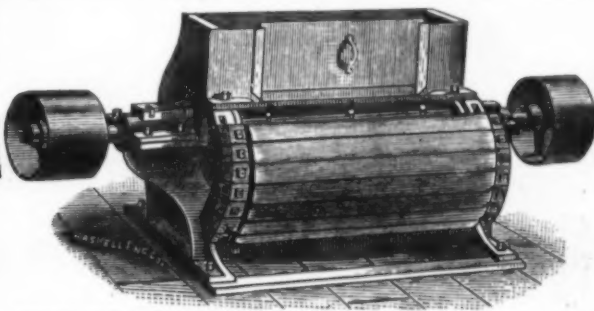
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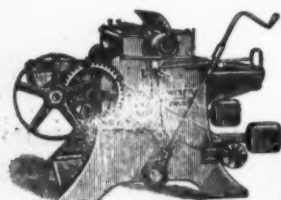
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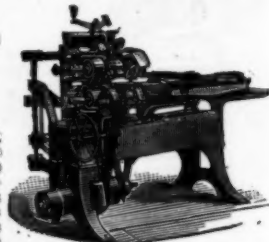
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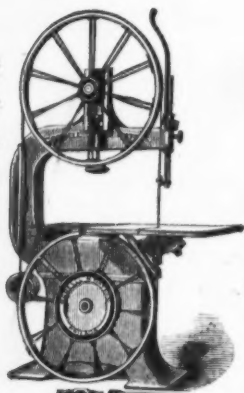


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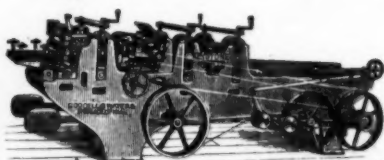
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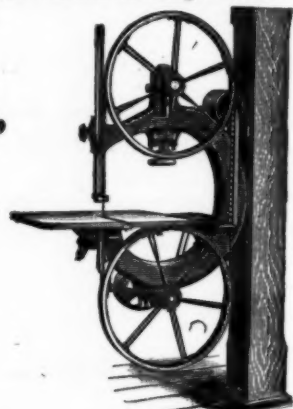
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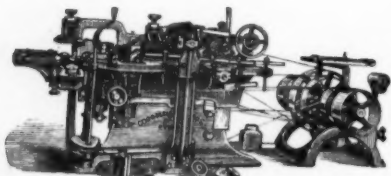


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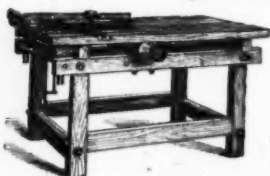
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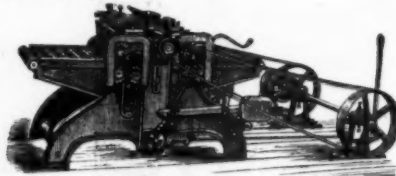
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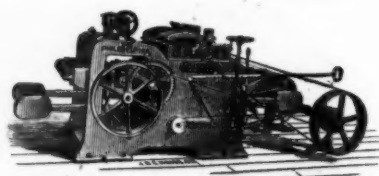
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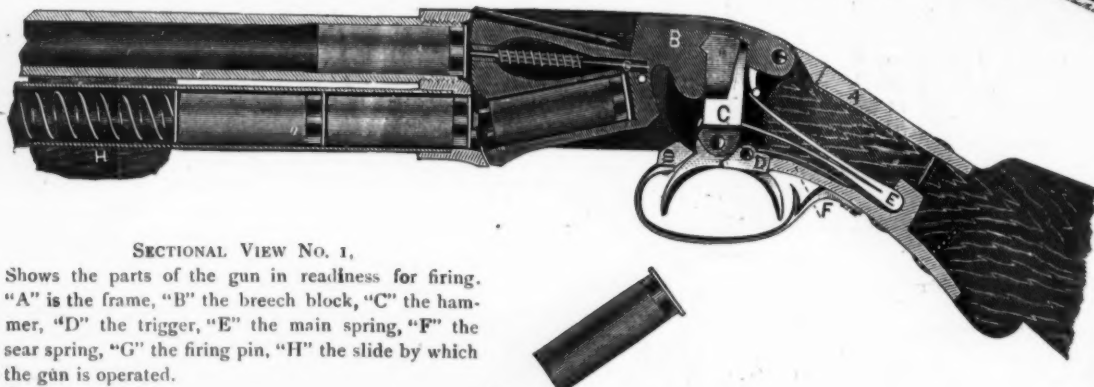
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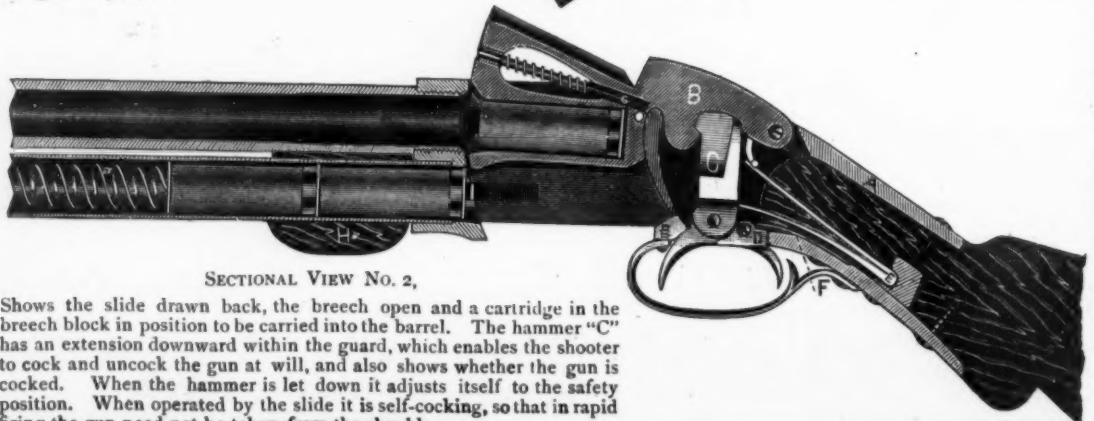


Twelve-Gauge Damascus barrel, Italian walnut, Pistol-grip stock, checkered and rubber butt-plates.



SECTIONAL VIEW NO. 1.

Shows the parts of the gun in readiness for firing. "A" is the frame, "B" the breech block, "C" the hammer, "D" the trigger, "E" the main spring, "F" the sear spring, "G" the firing pin, "H" the slide by which the gun is operated.



SECTIONAL VIEW NO. 2.

Shows the slide drawn back, the breech open and a cartridge in the breech block in position to be carried into the barrel. The hammer "C" has an extension downward within the guard, which enables the shooter to cock and uncock the gun at will, and also shows whether the gun is cocked. When the hammer is let down it adjusts itself to the safety position. When operated by the slide it is self-cocking, so that in rapid firing the gun need not be taken from the shoulder.

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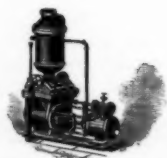
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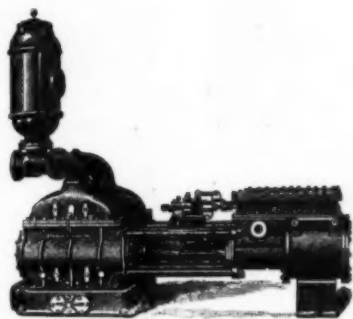
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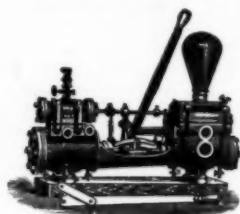
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COMPOUND PUMPING ENGINE.



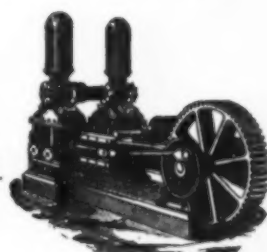
BOILER FEED PUMP.



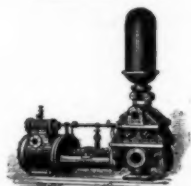
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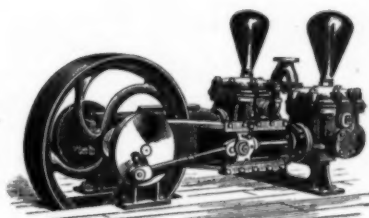
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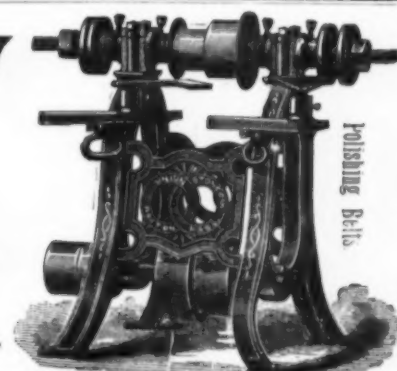
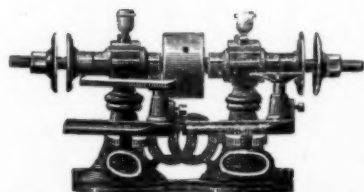
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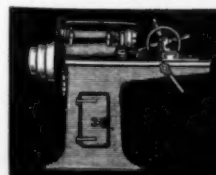
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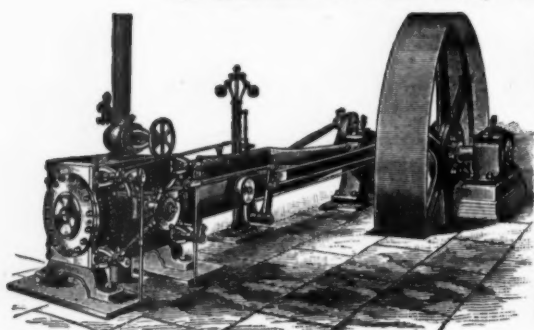
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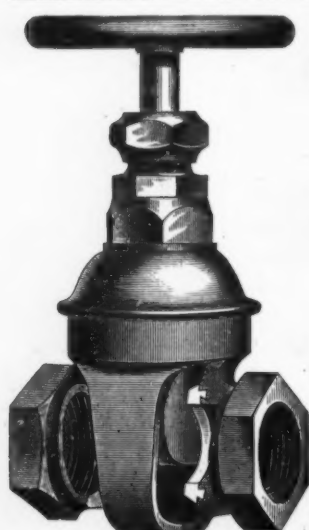
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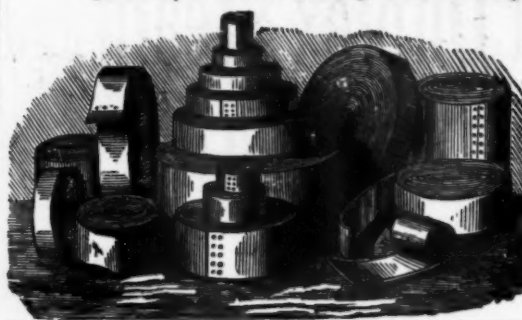
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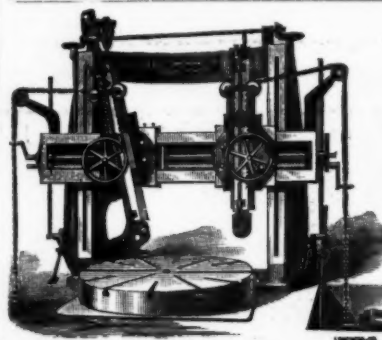
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